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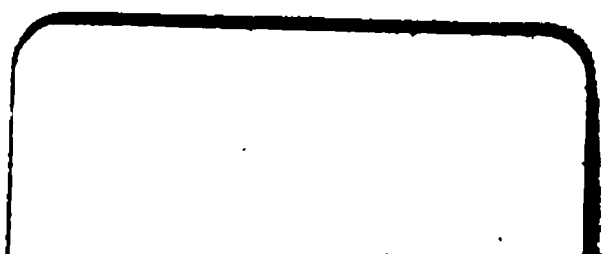
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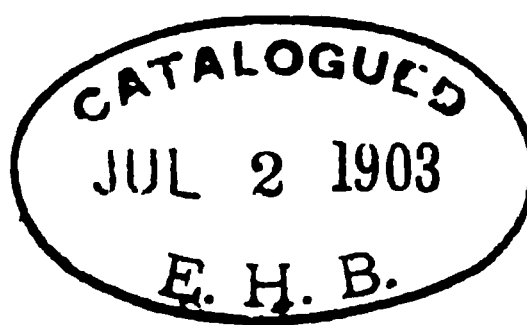
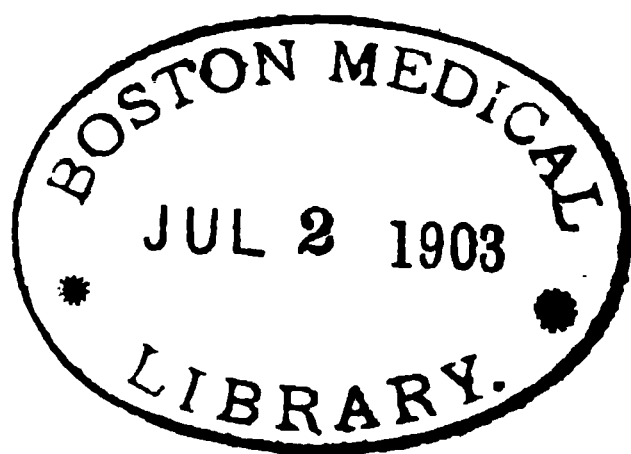
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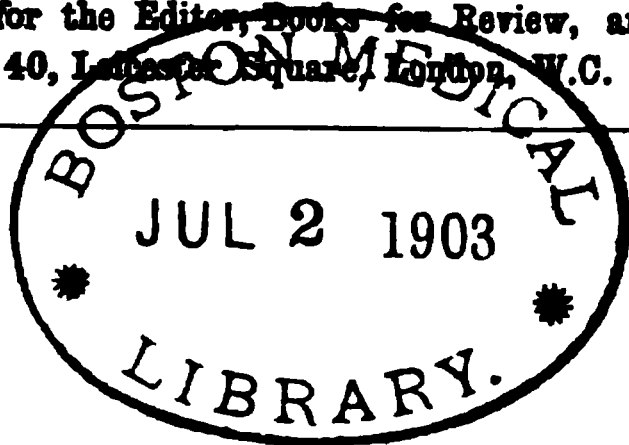
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THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 1.

JANUARY 15, 1885.

VOL. VI.

What remains to be done.

LAST January, we directed the attention of our readers to a few unsolved problems in the domain of our science and practice. We are entering upon another year, and we think it will be following a salutary precedent if we again turn our thoughts in the direction of what remains to be done.

In the region of our work in the surgery, there are many important points that urgently demand the attention of careful experimenters. The letters of 'Experientia docet' of last month, and that of 'A Looker-on' which we publish in this number, suggest a field of research for the energetic that cannot fail to prove worth cultivating. Both writers complain, and with justice, of the very unsatisfactory condition of our information with regard to the nature and durability of stoppings of various kinds; we sincerely hope that some

attempt to place our knowledge of this subject upon an exact basis will result from the correspondence. We have long ago suggested to the authorities at Leicester Square, that in that institution the finest opportunities for accurate observation were being daily wasted for want of a little method, but so far in vain, and though we think "A Looker-on" is a little hard upon personal experience, which is surely sometimes something more than mere "random recollections," we heartily hope his suggestions will be adopted in some form or other.

Another undecided point of interest from a surgical point of view, is the exact nature of the union which takes place in a replanted tooth. If a healthy tooth be extracted and immediately replaced in its socket, is its subsequent connection with the body periosteal only? is it in fact, a "dead" or "pulpless" tooth, or is the connection with the pulp re-established? and, if the latter be the case, how long can a tooth remain out of the socket before such union becomes impossible? and how far does the age of the tooth affect the chance of such reunion? Again, if there be no such reunion, what becomes of the pulp in those innumerable cases in which neither looseness nor loss of colour ensue? does it remain shut up, unchanged? or is it absorbed? if so, what occupies its place? All these points must be definitely settled before the operation of replantation can be considered as a sound and defensible surgical operation. They are not difficult to demonstrate, and we trust 1885 will see them demonstrated.

We should also be very glad to hear some facts about the exact changes that accompany the operation of expanding the arch of the palate; whether the extra space is gained between the maxillæ, or whether the alveolar process is itself altered in its relation to the body of the bone. It has been suggested that if the maxillæ were forced apart,

the central teeth would be separated, but the author of the suggestion must have entirely forgotten the existence of the incisive bone; though, of course, the separation might involve the maxillæ without dividing up the incisive bone. Moreover, if indeed the alveolar process is pushed along as it were, a process of absorption and reconstruction going on all the while, how is it that the cure once effected and the apparatus removed, the previous V-shaped condition is very apt to return? here is a problem, the solution of which must decide us in rejecting this method of procedure as mischievous, or accepting it as a great addition to our resources.

Turning from the surgery to the laboratory we again encounter a crowd of interesting questions waiting to be investigated. Though attracting the interest and enquiries of a very limited number of workers, histology and pathology form the only sound base for our knowledge to rest upon, and fortunately their votaries, although few, are enthusiastic.

The question of the development of enamel has been once more re-opened; in fact, since the revolution effected by the observations of Heitzmann and Bödecker, the whole anatomy of that tissue has become a matter of absorbing interest to the student. The distribution of living protoplasm throughout the enamel may be now considered to be an established fact, but the details of its distribution require much elucidation. As our staining methods improve much will, no doubt, be done, and we have reason to know that some careful work is now being done in this direction. The exact mode of termination of the non-medullated nerve fibres in the pulp has not as yet been really made out, and in this connection we should like to utter a word of warning. The difficulties which beset this investigation are very great in themselves, but they are increased tenfold by the careless generalizations of quasi-scientific investigators, who, re-

garding the whole subject simply as a legitimate form of advertisement, publish imaginary experiments and guess-work statistics, and so obtain for themselves a reputation for science amongst the unlearned, all the while retarding *bonâ fide* discovery and leading astray, to the great loss of time and temper, many a credulous experimenter who may attempt to verify their results. It is impossible to be too sceptical about one's own observations, or too incredulous about the statements of explorers whom we do not know.

Professor Sudduth, in the *Cosmos* for November, states his belief that the enamel cells are not converted into enamel and that they remain as Nasmyth's membrane, thus endorsing the old view of Waldeyer. Professor Sudduth's opinion is entitled to all respect, although he does not give very much evidence in support of this view, but his experiment on the stellate reticulum to determine the presence of lime salts (vide p. 48) is beautiful, and we hope will be promptly repeated and verified.

It is a hopeless task to even hint at all the burning questions that demand our thought and labour during the present year. Of one thing alone we are sure; that the science of dentistry of which we have so just a reason to feel proud will give us cause to feel prouder still. No one can visit our hospitals without feeling that, judging from the class of men seen there at work, there is a very bright outlook for the future.

Another Scotch Prosecution.

IN the November number of this Journal we published a report of a prosecution successfully conducted by Mr. W. B. Macleod, at Edinburgh, on behalf of the Association, against one William Robertson for offences against the Dentists Act. The defendant pleaded guilty, and his Counsel having undertaken on his behalf that he would not repeat the offence, he was fined the mitigated penalty of £5. Unfortunately for himself, Robertson did not

long respect the pledge which had been given, and the Association was obliged again to put the law in force against him. This second trial has just been concluded, and has resulted in the infliction of a fine of £20.

One important point elicited in the course of this trial, is that it has been authoritatively stated that a separate fine may be claimed for each offence against the Act, and that each repetition of an illegal advertisement is an offence. Robertson had thus made himself liable on this occasion, to a fine of £120, and should he still prove contumacious, no doubt some such exemplary punishment will be inflicted. Or it would, we believe, be open to the Association to apply for an "interdict" against him, a Scotch form answering to our "injunction," a disregard of which would render him liable to punishment for "contempt." We are glad to hear that on this occasion Robertson did not repeat the groundless assertions with reference to Mr. Macleod in which he indulged in the course of the first trial. It is to be hoped that he will now see the folly as well as the illegality of his practices, and that we may hear no more of him. A report of the trial will be found under the head of "Association Intelligence."

Some Recent Papers on Dental Histology.

A SERIES of papers on the embryology and histology of the teeth, published in the October, November and December numbers of the *Dental Cosmos* appears to call for some notice from us. The mere fact of publication in a journal of such deservedly high reputation as the *Cosmos* would lend importance to any paper, whilst in this case additional weight is given by the numerous carefully executed woodcuts and micro-photographs with which they are illustrated. As regards two out of the three essays, viz., those by Dr. Sudduth of Philadelphia, the prominence conferred upon them is not altogether undeserved. We reproduce one of these in this issue of our Journal, believing that it will be appreciated by many of our readers who take an interest in pure science. Prof. Sudduth does not advance anything very novel or original, but he gives a clear and concise exposition of the views now generally held in America, and it is satisfactory to find that these coincide in the main with those held by our own school of anatomists. We must admit, however, that the paper loses much by the omission of the illustrations already referred to, and we

would therefore advise all who can refer to the original paper in the *Cosmos* to do so.

We regret that we cannot speak as favourably of a paper on the same subject by a Dr. Williams of New Haven, Connecticut, which will be found in the November number of the *Cosmos*. Indeed we are at a loss to understand on what grounds the Editor of the *Cosmos* can have thought it worthy of a place in his journal: To us it appears one of the worst specimens of unnecessary literary production we have ever met with.

Dr. Williams actually pretends to foist on a credulous world as his own discoveries the four following points, viz. :—

- (i.) That the teeth are not developed as papillæ in a groove.
- (ii.) That there is an enamel organ with a definite function.
- (iii.) That the formation of enamel is from the line of its union with the dentine outward.
- (iv.) That the odontoblasts are of the nature of ganglionic elements, sending processes outwards into the dentine, backwards into the pulp, and probably laterally to each other.

He then goes on innocently to explain why these points have not been established before! If this genius of discovery had devoted his original talents to medicine, he would no doubt have discovered vaccination, and established for the first time the fact of the circulation of the blood. When he travels he will no doubt discover England, and then he will find to his surprise that Goodsir is dead and his groove almost forgotten, and that the other three points were established at a still earlier date.

We find, however, that ancient as Dr. Williams' discoveries are, there is still at least one unbeliever who will not be convinced; an incredulous sceptic who will have none of it, but who "pins his faith to philosophical deductions, or a few worthless specimens sent him by a commercial dealer,"—it must surely have been the Wandering Jew himself who supplied these delusive antiquities,—and our surprise at this strange anachronism of a discoverer, this quaint spirit who will not be discouraged in his career of exploring even by the fact that all the work he has accomplished has already been done years ago, is entirely forgotten in our excitement when we learn that there exists a yet more curious freak of human nature, viz., the man who does not believe all this, who still remains to be convinced. What would not such a man disbelieve? His capacity for rejecting evidence must be something wonderful. Was he woefully deceived in early life and his

trust in his fellow-men for ever unsettled? Does he now throw doubts upon the value of the mariner's compass, or refuse to believe that the earth moves? Fortunately there is no doubt as to the identity of this phenomenon of obstinate and dogged incredulity, for the name of Dr. Garretson is gibbeted in this connection at least three times on every page of the article, and we finish our perusal of it wondering whether Dr. Garretson is more to be envied for having Dr. Williams to "discover" for him, or Dr. Williams for having Dr. Garretson still to convince. We await with interest the day when they will first get hold of the intelligence of the death of Queen Anne.

ASSOCIATION INTELLIGENCE.

Midland Branch.

AN open Meeting of Members and Associates of the above will be held at the Young Men's Christian Association, Peter Street, Manchester, on Saturday, February 21st, at 6 o'clock.

This meeting is for conversation and discussion upon any matter relating to the science or practice of dentistry; and members are cordially invited to avail themselves of the opportunity.

The Annual Meeting of this Branch will be held during the month of April, at Nottingham, where preparations are already being made to secure a hearty reception. One or two short papers are required, and gentlemen who are willing to contribute in any way to the success of the meeting, by demonstrations or otherwise, are requested to communicate with the Secretary,

W. H. WAITE,
10, Oxford Street, Liverpool.

Central Branch.

A MEETING of this Branch will take place at 5 p.m. to-day (15th inst.), at 71, Newhall Street, Birmingham, as announced in our last number. The President, Mr. Chas. Sims, will deliver an address, after which papers and casual communications will be read by Messrs. F. E. Huxley (on Constitutional Treatment in Caries), Bennett May, Breward Neale, J. Humphreys, F. W. Richards, and W. T. Elliott. We shall, of course, publish a report of the proceedings next month.

Canton *versus* Robertson.

JUST as we were going to press, we received a copy of the shorthand writer's notes of this case, which was decided at the Sheriff's Court, Edinburgh, on the 9th inst.

It was a sequel to the case of Macleod v. Robertson, a report of which appeared in the November number of this Journal. In his "complaint," issued on the 3rd inst., Mr. Canton, as Secretary of the British Dental Association, charged William Robertson with having in the months of November and December, 1884, subsequent to the decision given against him on October 25th, committed six offences against the Dentists Act, in that he, not being a person registered under the Dentists Act, or a legally qualified medical practitioner, had continued to display on the railings in front of his house a brass plate with the word "Dentist" thereon, thereby implying that he was so registered; that he had a lamp on the front of his house with "Robertson, Dentist," thereon; that he had unlawfully assumed the title of dentist in advertisements which he had inserted during the months of November and December in the *Scotsman* and *Evening News*, newspapers published in Edinburgh, and that he had generally assumed this title in defiance of the sheriff's previous decision and sentence.

On the 9th inst., William Robertson, of 28, Rankeillor Street, Edinburgh, appeared at the Sheriff Summary Court, Edinburgh, to answer the above charges, brought against him by Frederick Canton, with the concurrence of the Branch Council for Scotland of the General Medical Council.

In reply to Sheriff Rutherford, who was on the bench, the accused pleaded "guilty."

Mr. G. H. THOMS, who appeared on behalf of the complainant, asked his lordship to take into consideration the fact of Robertson's previous conviction, and read a letter addressed by Robertson to Mr. Canton, in which he stated that he had been induced to plead guilty on the previous occasion, because he had heard that two of his customers were to be brought forward against him to testify to his bad workmanship, and he feared that this, if published in the newspapers, would injure his business. He had, therefore, pleaded guilty to prevent these witnesses from appearing against him. He added, "although it is now only a fortnight since the trial, I am fully convinced that the course I took was the

proper one from a business point of view, as I have gained double the support and much public sympathy."

Mr. MACDONALD, who appeared on behalf of the accused, said he admitted that it was illegal for his client to put up a sign. He had tried to convince him of it, and he believed that he would now take the course suggested. He asked his lordship to look upon the letter just read as nothing but a foolish boast.

Mr. THOMS called attention to the fact that in the letter the defendant stated that he had previously followed the business of a bicycle maker and mechanical engineer in London, so that he had another occupation to fall back upon.

SHERIFF RUTHERFORD said the Act was passed to protect the public against parties practising dentistry, who had not any proper qualification, and to afford security to the public that those who did so practise were properly qualified as dentists. It appeared that as recently as the 25th of October last, Robertson had been convicted of offences similar to those to which he had now again pleaded guilty. He had then been very leniently dealt with, seeing that though the penalty incurred was £20, he got off with a fine of £5. On this occasion he should adjudge him to forfeit and pay the sum of £20 sterling of modified penalty, and in default of immediate payment thereof adjudged him to be imprisoned in the prison of Edinburgh for the period of twenty-one days, unless the said penalty should be sooner paid.

The defendant, however, paid the fine and was released from custody.

The Benevolent Fund.

THE Committee of the Dental Benevolent Fund earnestly appeal to the profession for votes towards securing the election into the London Orphan Asylum, Watford, of DUNCAN CAMPBELL KING, aged nine years, eldest child of the late Octavius Barnard King, who practised for many years as a dental surgeon at Brecon, South Wales. His short illness of rapid consumption, and early death, prevented his making any provision whatever for his widow and five young children. The case is well-known to, and strongly recommended by, the following:

Lord Tredegar, Tredegar Park, Newport, Mon.

Sir William and the Hon. Lady Style, Mansion House, Brecon, South Wales.

Mrs. Chapman, 2, Sheffield Gardens, Kensington, W.

J. P. Gwynne-Holford, Esq., Buckland, near Bwlch, late M.P., for Co. Breconshire.

Dr. Talfourd Jones, The Bulwark, Brecon, South Wales.

Rev. A. G. Gristock, St James's Vicarage, Hereford.

D. W. J. Thomas, Esq., Solicitor and Coroner, Co. Breconshire.

Mr. F. Ormond, 14, Williamson Street, Holloway, N.

Rev. Herbert Williams, Vicar of St. Mary's Church, Brecon.

Col. Conway Lloyd, Dinas, Breconshire.

Col. David Jones, Royal South Wales Borderers, Vehindre, near Llandovery, South Wales.

Rev. R. Powell, The Vicarage, Withington, Hereford.

J. R. Cobb, Esq., Nythfa, Breconshire.

Major Doughty, 4th Battalion The King's Shropshire Light Infantry Regiment, Hereford.

Rev. Charles Griffith, Rector of Talachdhu, Glyncelyn, near Brecon, South Wales.

Proxies will be thankfully received by the widow, Mrs. O. King, at her residence, Ledbury Road, Hereford.

The election will take place on the 23rd inst.

OAKLEY COLES.

Jan. 1st, 1885.

Hon. Sec.

Dental Benevolent Fund.

The following donations and subscriptions have been received up to the present date:—

	Donations.	Ann. Subs.
E. K. Satchell, 239, Elizabeth Street, Sydney, New South Wales	£2 2 0	£2 2 0
W. F. Henry, 97, King William Street, E.C. ...	—	1 1 0
Fred. W. Mackenzie, 35, Prince of Wales Road, N.W.	0 10 6	0 10 6
A. Baxter Visick, The Wolds, College Road, Eastbourne	—	1 1 0
Jas. T. Hoare, 208, Goswell Road, E.C. ...	—	1 1 0
G. C. Kernot, 9, Elphinstone Road, Hastings	—	0 10 6
Alfred Abel, Alexandra House, Harrogate ...	—	1 1 0
Ernest J. Wallis, 54, Drysdale Street, Alloa ...	—	0 10 6
G. Bosworth Peters, 10, George Street, Not- tingham	2 2 0	1 1 0
Woodhouse Braine, 56, Maddox Street, W.	—	2 2 0
J. R. Andrews, The Oaklands, Abbey Road, Torquay	0 10 0	0 10 0
P. Edward Fox, Dale Terrace, Tynemouth Road, North Shields ... ..	. —	0 10 6

	Donations.	Ann.	Subs.
S. W. Moody, 6, Walkergate, Louth	—	£0	5 0
Wm. Shillinglaw, 33, Hamilton Square, Bir- kenhead (<i>additional don. and 10s. 6d. sub.</i>)	£1 1 0	1 1 0	
J. Charters Birch, 191, Meanwood Road, Leeds	—	0 10 0	
H. W. Jordon, 10, Prince's Street, Cavendish Square, W. (<i>additional</i>)	2 2 0	1 1 0	
A. J. WOODHOUSE, <i>Treasurer.</i>			
OAKLEY COLES, <i>Hon. Sec.</i>			

ORIGINAL COMMUNICATIONS.

Prevention of Irregularity.*

By J. R. BROWNLIE, L.D.S.Eng., Glasgow.

THE position which nature gives to the teeth in a well formed mouth, may be said to be the result of three forces, acting in concert or independently. The teeth are made by growth to project to the proper level into the cavity of the mouth. A well formed arch and proper adaptation of the teeth of one jaw to those of the other, are obtained by the contact of the teeth with each other, and with their fellows of the opposite jaw. The soft parts—the lips, cheeks and tongue—have also a share in contributing to the perfect arrangement.

While a regular arrangement of the teeth, as a result of nature's handiwork, is common enough, we are frequently called on to see the result brought about by certain other forces, acting at variance with those named, and giving to the teeth a crowded arrangement, which is a blemish in the mouth of beauty, by which speech is impeded, and which is an important factor in the production of dental caries.

The causes of crowding of the teeth are commonly, loss of proportion in the relative sizes of the teeth and jaws, otherwise want of space, undue retention of members of the first set, and any habit or practice on the part of the individual giving rise to pressure which may be continued long enough to permanently affect the position of the teeth.

The period during which such hurtful influences exert their power, may be said to extend from earliest infancy to the complete eruption of the permanent teeth.

* Read at the Annual General Meeting of the Association at Edinburgh, August 29th, 1884.

The arrangement of the members of the first set is usually of small moment, nor can much consequence be placed upon such indications as they may offer. The subsequent relations between the two sets may, however, in view of the regularity of the second set, be of the utmost consequence, but until the time of the eruption of the permanent teeth the want of regularity in the first set is, practically, of very minor importance.

In discussing this subject, it must be borne in mind that the state of matters which we ultimately consider a deformity is primarily the natural arrangement; that ere the teeth are erupted their position within the jaws is by no means regular. A recent writer speaks of them at this stage thus:—"While there is no transposition of their crowns, each one maintaining its individual locality, they nevertheless stand in almost every variety of position. They will be seen deflected within or without the line, twisted, lapping, and sometimes completely overlapping one another." From such an unpromising beginning nature usually succeeds, in course of time, in rightly placing each individual tooth; the cases in which nature fails to do so are proportionately small. Many of these failures are, as they come to us, cases for correction, it may be by the extraction of one or more members of the set, or by the use of regulating frames. In others, the failure may be anticipated, and by timely care and judicious treatment prevented. Let us hope that by a better understanding of the subject, the number of the latter may suffer increase.

The age at which prevention may be needed is a very early one, a much earlier age than the dentist usually has the opportunity of applying his special knowledge. He is most frequently called on to correct the defect, rather than to prevent it. But the opportunity is a good one for administering a caution, for the benefit, it may be, of younger members of the family.

One of the earliest habits a child acquires, giving rise to oral deformity, is that of sucking the thumb, or it may be as much of the fist as it can cram into the mouth. A case came under my notice recently where the child was constantly making itself sick by getting its fingers back into its throat. That this habit when persevered in may greatly modify the form of the dental arch, there is no room to doubt, but I cannot endorse the opinion expressed by some writers, that it is a cause of the V-shaped jaw. I have met with several cases of this particular form of jaw where no history of thumb-sucking existed, and I cannot recall an instance

in which the two were associated. The effect produced by this habit seems to be more upon the position of the teeth, and only in a secondary way upon the alveolar border, and so closely are cause and effect related at times, that the deformity produced indicates the position in which the thumb was held in the mouth. One inveterate thumb-sucker I know, in order that she might the longer be able to indulge, passed the thumb of the left hand into the mouth and hooked the fingers over the nose for support, and thus secured a double deformity, a slight twist to the nose and a decided projection of the lateral chiefly, but also of the central and canine of the left side. These teeth have been pulled forwards and upwards, but there is no tendency to the V-shaped jaw. This habit is sometimes difficult of cure. Tying the hands down is too dangerous a method. Bitter aloes on the part sucked has been recommended also, but unfortunately we meet with tastes (or perhaps the want of taste) as objectionable as the habit, and the sucking goes on. The most determined thumb-sucker I have known gave in after having his stockings drawn up over his arms and secured at the shoulders with a few stitches. During the day he could be controlled, but at night the thumb-sucking went on. The first few nights the feet of the stockings were reported as soaked, but in about a fortnight the habit seemed quite overcome.

Closely allied to the above, there is much danger to be feared from the improper use of the feeding bottle. To secure quiet, or it may be a night's sleep to the nurse, the child is permitted to carry in its mouth the India rubber mouthpiece, not only during much of the day, but as much of the night also as it is capable of retaining it, even when asleep. At all times such habits should be stopped as soon as detected, but there is a possibility of laying too much stress upon them, except in one instance, viz.: when continued on into the period of second dentition, in which case both the teeth and part of the alveolar border may be very seriously injured, and that with but little chance of correction.

Next in point of time there is the possibility of the teeth of the first set becoming a cause of irregularity to those of the second. It is a matter of every-day experience that temporary teeth which have lost their vitality, and the roots of decayed temporary teeth, offer much resistance to the progress of the permanent teeth. Frequently they pass such obstacles on one side or the other; or failing to displace them remain imbedded. For a patient, twenty-two years of age, I recently removed a decaying temporary canine,

and was able with a probe to make out the outline of the permanent one, which had manifestly been stopped by the death of the temporary tooth, and consequent arrest of absorption. The cusp of the permanent tooth had advanced into the hollow of the partially absorbed root of its predecessor. These are conditions as to the treatment of which difference of opinion can hardly exist. The extraction of the root or roots, if performed in time, is sure to prevent any permanent mischief. Throughout the period of second dentition, it will be generally allowed there is much room for care and skill on the part of the dentist. In many cases much will depend upon his judgment, yet the widest differences of opinion prevail as to what should constitute further preventive treatment at this stage.

During this period, we should ever insist in doubtful cases upon the opportunity of frequent inspection, three or four times a year at least. The principle sources of mischief are:—an actual want of space in the mouth, a want of patience on the part of the friends of the child, and the question of fees—consultations gratis.

Several causes have been assigned for the want of space in modern jaws for the accommodation of the full number of the permanent teeth. Over some of these causes we can exercise no control. Men will marry wives for other reasons than we can supply them with, and not for the possession of that type of beauty which is consistent with the expectation of a well-developed progeny. In a paper which aims at being practical we may limit our view to those conditions which we can hope to control. On cutting its teeth a child is in a position to enter upon, with advantage, a more varied and harder diet than suffices for the first few months. The very possession of teeth indicates the propriety of providing it with food of a nature requiring mastication.

With the constitutional effects of improper feeding at this stage, we are, in view of the prevention of irregularity, less directly interested. That with which we are very seriously concerned is the tendency to deprive children of even the slightest occasion to use their teeth, especially the earlier use of the first set. Under every variety of name, and supported often by testimonials from those who might well reconsider their views, the child's digestion is exercised upon slops. When anything else is given, it must first be deprived of everything which would give the child occasion to use the organs of mastication with which nature has provided it. Can we wonder that under such conditions, lacking the

stimulus which nature has ordained to be necessary for the full development of all our parts, the teeth should be weak, and the jaws, from an almost total want of exercise, feeble and imperfectly developed? Weaker children may want special treatment, but for the healthy we cannot too strongly condemn the employment of such deteriorating influences.

With the same view, the filling of the teeth of the first set must be attended to if required. Not merely the filling of teeth which have already been a cause of pain, and which parents and friends commonly seek for, but that early attention must be insisted upon which will secure to the child the free use of its temporary teeth, till their successors are ready to take their places.

There can be no doubt that much of the anxiety on the part of parents and friends to have something done, has had its origin in the readiness with which temporary teeth were sacrificed not so very long ago. It is a rare thing now to hear of a child having to part with six, eight, or ten of the first set at a sitting, to make room for the new ones. As a mode of securing regularity, such a procedure is not likely to be defended here, but might, indeed, rather be enumerated amongst the causes which promote it. The extent to which teeth of the first set are sacrificed to make room for those of the second, depends still, I believe, to a great extent, upon use and wont, together with a disposition to conciliate the powers that be, rather than upon a reasonable interpretation of what we know concerning the process of second dentition. Take, for instance, one of the first symptoms of irregularity—the appearance of the permanent central incisors, rather across than in the line of their proper position. To the anxious parent, the position of the teeth gives rise to uneasiness, and the time seems favourable for correcting it. No doubt the removal of the temporary lateral incisors would have the effect of “straightening” the offenders, and quieting the parent’s anxiety for a time. If the position of the centrals were the only thing to be considered, then the extraction of the temporary laterals would immediately effect a cure. But there are other considerations. Parents rarely remember that for each of the front temporary teeth, there is to come a permanent successor, wanting, it may be, quite a half more space. In the slightly irregular position of the incisors, the dentist sees only, it may be, a loss of balance in the matter of time, just as he sees in other cases a loss of proportion in the relative sizes of teeth and jaws. He knows, too, that in all such cases, if space be ultimately

provided, contact with the opposite teeth will ensure a cure. He cannot hide from view the certainty that if space is not ultimately to be provided, the extraction of the temporary laterals will afford no real or permanent benefit. If the teeth have been cut in advance of the time at which sufficient space is provided for them, the position of the incisors will be but a temporary continuation of the state of matters existing prior to eruption, and which at that period is to be looked upon as the natural and proper position for them. But this is not all. The subject of contraction consequent upon the extraction of temporary teeth has been much canvassed, and is still held as correct by some. There seems to be no means of determining this question with certainty. We have no help in analogy. The position is unique. It is the only example in the human subject of a member endowed with vascular and nervous supply being forcibly removed from its bony socket, and its place taken up by another similar. Without entertaining the idea of contraction, there are appearances presented by the mouth occasionally, and as a consequence of extraction, which have suggested the idea of an arrest, and to some extent, loss, or want of development. In other of nature's operations we have frequently to notice special effort or provision put forth under the stimulus of necessity, and on the other hand, diminished efficiency from want of stimulus. In view of such facts, is it unreasonable to believe that the extraction of the lateral incisors in the case named is the taking away of a much-needed stimulus, and consequently, treatment the very opposite of what is likely to promote a full development of the alveolar processes? In such a case, also, the possibility of giving to the root of the permanent incisor an incorrect form must be kept in view. Many of the bent roots we meet with are probably brought about by the too rapid movement or falling apart of the central incisors, consequent upon the extraction of the temporary laterals, at a time when the roots of the permanent incisors were still forming. Further, the extraction of neighbouring temporary teeth, for the "straightening" of cutting permanent ones, is but the beginning of a process which must be carried on into the second set. I have never known a lateral and first bicuspid which had obtained too close an approximation, separate of themselves to admit the canine. The pressure from behind will, I believe, always prevent this, and unless by the extraction of a neighbouring permanent tooth, or the use of a regulating frame for its reduction, the canine will remain a "buck" tooth.

To avoid the extraction of neighbouring temporary teeth may not enable us to retain *all* the permanent ones in regular form. but it certainly has one advantage—it leaves us more at liberty in the selection of such as must be sacrificed, when the sacrifice has to be made.

The retention of neighbouring temporary teeth when the permanent teeth which have been cut are irregular, may be objected to on the score of possible injury from pressure. My own experience does not support this view. It is not so much the pressure as other causes which give rise to caries. The irregular position is less favourable for the use of the brush, for one thing, and with those with whom brushing is merely a form there is danger to be feared. But pressure alone does not often give rise to caries. Polished facets at the points of contact are a common result of natural movement under pressure. When caries does occur it is rarely at the points of contact, but rather in the near neighbourhood of them.

That the extraction of neighbouring temporary teeth for the cure of irregular permanent ones has been productive of much evil, I believe, and I hope ere long to find it stated in the text books provided for a coming race of dental students, that the extraction of a temporary tooth to make room for any but its immediate successor is a mistake and to be avoided.

There is only one other topic in connection with this subject to which I would ask your attention. It is no doubt a delicate question, and to be handled with caution, but in one of its aspects it bears so directly upon our subject, that it may not be omitted. I mean the practice of setting no money value upon the services rendered and time occupied in consultation. Every one understands the origin and intention of this practice, an evil which now seems to pervade all classes. Apart from its obvious intention, the position was a singular one. An operation, in itself so simple that the veriest clown can hardly blunder, is credited with a money value and the fee readily paid, while the special knowledge which has to be acquired by years of study, and which alone enables one to deal intelligently with the conditions, is too frequently set at naught as a thing not worthy of any recognition.

Indefensible throughout, the practice is one which is especially objectionable in regard to the care of children's mouths. If the dentist knows beforehand that on his decision will rest the question of fee or no fee, it is too much to expect from human nature that

his decision will be free from bias, and founded purely on the merits of the case. The temptation is too great. If it be a question of the extraction of a temporary tooth, the operation is in itself a trivial one, and more than likely is wanted done by the parent, who is quite incapable of forming any adequate opinion as to its ultimate effect upon the mouth. Is it possible that under such conditions an opinion *can* be founded purely on the merits of the case? The position cannot be defended, and there are but few of those parents or friends who interest themselves in the subject, who are not capable of recognising the risk to which the best interests of the child are exposed, and with whom a word or two of explanation is all that is needed to secure to the operator, unreservedly, the opportunity to act or abstain from action, *secundem artem*.*

Mesmerism and Dentistry.

BY HENRY BLANDY, L.D.S.Ed., Nottingham.

ABOUT six weeks ago I was taking an evening stroll, and seeing that something was going on in our Mechanics' Hall I walked in. It was a mesmeric entertainment. I had never seen anything of the kind before, and became much interested in what the lecturer, "Professor" Kershaw, from Southport, Lancashire, was saying. There were nine persons flat on their backs on the platform behind him, of whom for some time he took no notice, but at length he explained that they were completely unconscious and in perfect sleep; if anyone doubted it let him step up and see. Several men did so, and pulled them about without awaking them. I ventured to suggest from the hall a pin prick, as a good test of the degree of unconsciousness,—my mind was full just then of the lamented death of Dr. Macdonald under chloroform,—but this test the professor objected to on behalf of the patients. He then asked me on to the platform, and there I found four women and five men perfectly rigid and apparently in a deep stupor; some were frothing at the mouth, just like epilepsy. Two of us raised one man by the feet and shoulders, and a third knelt and then stood upon his thighs without bending the body in the slightest or awaking him. By taking a woman by the shoulders I could raise

* The discussion which followed the reading of this paper will be found at p. 593 of our last volume.

her up on her feet quite easily, but could not make her stand. The fingers, hands, and arms of all were rigidly clasped over the chest, and it was impossible to unfasten them until the "Professor" loosened them by a few touches on the shoulders, when they separated and the knuckles were smartly rapped upon the platform like the sudden release of a strong spring. This did not awaken any patient either. I did not see these people mesmerised. Was this an anæsthesia applicable to general surgery or the extraction of teeth? Was it of any practical value? To both questions I was answered, yes.

Mr. Kershaw having been informed by someone that I was a dentist, said he would be very glad if I would the next day take out a tooth for one of these people under this influence. To this I agreed, provided he got her consent. I accordingly extracted two stumps on the following day in a private room. The patient, a young woman of 25, was quickly got under the influence, whatever it is, and of which I express no opinion. She went to sleep. I took out the stumps, apparently without causing her the least pain. They were not difficult stumps, and I desired a severer test, and, if possible, a person not having been previously seen by Mr. Kershaw—just such a case as might present itself any day to a dentist. For I understood that a person who has been once mesmerised is always more easily influenced afterwards.

A Mrs. B., who was also a member of Mr. Kershaw's troupe, was found to have a number of bad teeth, and for her, on Friday morning, I extracted six teeth and stumps, in the presence of Dr. Hayden White, whom I had asked to accompany me. I should have made this communication before, but unfortunately I mislaid my notebook and hoped I might find it, but have not been able to do so; therefore this is from memory. Mrs. B. was about 36, and was mesmerised into a state of unconsciousness in less than a minute. Mr. Kershaw in this and the succeeding operation passed his fingers over the region of the upper and lower dental nerves, with the remark that *he could paralyse the sensation in any nerve*. As I took out the teeth she did not seem to feel the least pain, and they were fairly bad teeth. What is, perhaps, more strange, she could, on being asked, spit out and rinse her mouth into a basin, open her mouth, turn her head to the gas, and render every assistance that a fully conscious person could. There was no need for speculum, or hurry. The anæsthesia was lasting, and there was no disinclination to put the head back for another tooth.

There was, so far as we could judge, a perfect insensibility to pain, and yet intelligence of language—so different to any other form of unconsciousness arising naturally in ordinary sleep, or after epilepsy, or under an anæsthetic such as chloroform or gas. One would suppose the wrench of a tight tooth would soon dissipate any shamming—at least, I could think of no better test, and yet how could this man have willed that she should be conscious of what was said to her, and yet unconscious of a forcible appeal to what may be called the involuntary muscles? It has been said these patients get trained to their work, to the art of deception, &c., but this was her first rehearsal. It was, however, a little too much for me when Mr. Kershaw made passes on to the tumbler, and gave it to her to rinse with, and she said “What nice peppermint.” He said, “I can make that taste to her and have the effect of any drug I please.” This, however, I find is no new thing, and has been practised by mesmerists for years.

Everyone cannot thus be influenced; they are too strong-minded or too weak-minded, too bold or too nervous, too well or too ill; but if you hear of a person being mesmerised, it has been generally said he or she was very susceptible—was a poor, unstrung, weakly, and weak-minded person. Well, and this greatly puzzles me. What has this mesmerist done to the woman, to give her the physical courage and endurance such as I have described. There is a confliction of ideas and manifestations in mesmerism which is very perplexing to an unbiassed mind.

This patient had no sickness or nausea, and she recovered easily after a few flips from a handkerchief, “to drive off the magnetism,” as the Professor said. She had some more teeth to be removed, so I determined to desist then, and invite some other friends to witness the phenomena. I accordingly asked a few medical and dental practitioners to come on the following Tuesday morning, at the unreasonable hour of nine. I had also provided a girl of 16, a stranger to Mr. Kershaw, to be mesmerised and have teeth out. On the Tuesday morning three medical men and two dental surgeons met me at the Mechanics’ Hall. Mrs. B. was again mesmerised by Mr. Kershaw, and was perfectly unconscious in fifty seconds. He standing four yards in front to make the “passes,” which are simply an alternate throwing of the hands forwards and bringing them down to the knees at full stretch in

regular time, the eyes being kept fixed upon the patient's face. He never winked or blinked; the long, steady, gaze was quite remarkable. She became rigid in the common Windsor chair in which she sat, lolled her head over to one side, and was fast asleep. Mr. Kershaw went to her, touched her knees, or flipped them with a handkerchief; the legs loosened, and she was brought to a chair under the gaslight. Her teeth, pulse, respiration, and eyes were examined, and nothing unusual remarked. She could open her mouth and obey any direction. I took out several stumps, and then grasped an upper canine, which proved a very tight one. I had a good pull at it, and passed the forceps to Mr. G., for him to feel it was a real test tooth. He had a good tug and out it came. No one could gainsay the insensibility to pain. After some time I got the Professor to try and mesmerise the girl I had sent him; after a quarter of an hour she fell back into the chair behind—for he had made her *stand* in front of a good fire—and in a few minutes she rolled her head over to the right side, but soon recovered. He could not get her under then, neither did he subsequently, so that as far as my experience of the value of mesmerism in practical dentistry goes, it is a failure. I got no independent case, and even this case had it succeeded, would not have been sufficient to form a judgment upon.

I wish to be clearly understood in this matter. This was my first contact with mesmerism, or "animal magnetism," and I did not, and do not understand it. There is much introduced that smatters of humbug—yet there is much that is interesting and astonishing. One has a great difficulty in arriving at any satisfactory conclusion. I find in an article on "Anæsthetic Discovery" in the *Lancet*, June 11, 1870, p. 841, that a committee, composed of Dr. Atkinson, Inspector-General of Hospitals, Dr. O'Shaughnessy, Dr. Stewart, Presidency Surgeon of Bengal, and other men of eminence and position, reported on various experiments of mesmerism carried on under their own observation by Dr. Esdaile; some of the results were doubtful, others singularly successful. Thus in one case, on September 17th, 1846, amputation of the thigh of a man was performed during the hypnotic state by the double flap operation and seven bleeding vessels were tied; these proceedings lasted 15½ minutes, and during the whole period not the slightest tremor of a limb nor movement of the eyes or eyelids occurred. The patient became fully awake at 32½ minutes after the commencement of the operation, at 42 minutes said he was

hungry, was willing to have his limb removed, and was unconscious that the operation had been already performed. In another case an hypertrophied scrotum weighing $16\frac{1}{4}$ lbs. was removed without pain, the length of incision through the skin being $38\frac{1}{2}$ inches; several other remarkable cases are quoted.

A few months ago I met an Independent Minister who said that when in Australia he used to mesmerise patients for operations in some of the hospitals.

As Professor Kershaw is travelling from town to town and is, I believe, especially well-known in Lancashire, where he said other dentists had operated under his method of anæsthesia, we may get some further information. I found him very willing to give any, and ready to assist me in the investigation of mesmerism in reference to capacity for bearing pain.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odonto-Chirurgical Society of Scotland.

THIS Society held its second Ordinary Meeting of the Session 1884-85, on December 11th, at the Rooms, 30, Chambers Street, Edinburgh, ANDREW WILSON, Esq., L.D.S.Ed., president, in the chair.

The SECRETARY announced the donation to the Society's Museum by Mr. David Hepburn, L.D.S.Eng., Edinburgh, of an apparatus for the administration of ether, in use many years ago, the patent being dated 1847. Also from Mr. C. J. Boyd Wallis, L.D.S.Eng., London, of three models illustrating the treatment of a case of epulis by electrolysis.

A unanimous vote of thanks having been accorded to the donors, the PRESIDENT called upon the Secretary to read Mr. Wallis' communication regarding the history of the case which the models illustrated.

Mrs. —, æt. about fifty, Epulis of the upper jaw over the sites of the right second molar and wisdom teeth, which had been extracted some two years previously. The tumour began to form, with the appearance of a gum-boil, some time before the removal of the wisdom tooth. When first under observation the saliva flowed freely, and there was a tender swelling at the angle of the jaw and down the side of the neck, with occasional stabbing pains. The general health was not good. The tumour overlaid the hard

palate, but was not adherent to it ; it was somewhat soft, of a livid red colour, and bled freely on puncture. This tumour was a second growth, the previous one having been removed by the knife. Treatment of the tumour by Electrolysis having been decided upon, Mr. Wallis constructed some needles of platinum wire which were inserted into copper wire and gold soldered, then arranged in a boxwood handle with a "make and break" arrangement for the current. Several needles were at first employed, and the Electrolysis was continued at intervals for a period of about six months. But little trace of the tumour was then to be seen ; a small mass of indurated cicatricial tissue alone marked the spot, and this in no way interfered with the adaptation of artificial teeth.

The discussion upon Dr. Norman Kingsley's paper, read at the previous meeting, followed, and, as announced, it was taken with the treatment of dental irregularities generally.

The SECRETARY, on behalf of Mr. Matthew, who was unavoidably absent, exhibited two series of models illustrating the treatment of regulating cases mainly through the agency of Coffin's split plate. In one, an outstanding lateral was brought into line, in an already well-filled jaw, with remarkable success ; in the other, a narrow arch associated with very marked irregularities both in the position and direction of the teeth, had been, after a year's treatment, reduced to a condition very closely bordering upon regularity ; but as the patient was still under treatment, a still more favourable result might be looked for. The latter case was the occasion of considerable comment, as the difficulties in undertaking it were great, and the results very gratifying.

Mr. E. A. CORMACK quoted Dr. Kingsley's statement that as a general rule "the finer the nervous organization, the more precocious or brilliant the intellect, the greater will be the tendency to dental deformity ; the converse is true of feeble-minded people, who, having a fair physique, will show well rounded jaws and regular dental arches. The exceptions to the latter statement are found among those cases of hopeless idiocy where the whole organization as well as the intellect is depraved." But the careful measurements made by Messrs. Cartwright & Coleman of the skulls preserved in Hythe Church, and by Mr. Mummery of 3,000 skulls, ancient and modern, did not quite bear out this statement. They showed that the average width of modern jaws was slightly less than that of ancient races, but they did not show the develop-

ment varied according to the civilization or intelligence of the race, since the jaws of the New Zealanders, Fiji Islands and Ashantees showed the best developed jaws, whilst Hottentots and Bushmen came lowest in the scale. The diminished size of the jaws and teeth in modern men as compared with their remote ancestors was no doubt due, as had been pointed out by Darwin in his "Descent of Man," to diminished use of these organs extending over a very long extent of time, just as at the present time the jaws were generally smaller in civilized men than in savages who live upon coarse roughly cooked food.

Regarding mere irregularity there could be no doubt, as Dr. Kingsley said, "that the primary cause, so far as the individual is concerned, of any general disturbance in the development of the permanent teeth, showing itself particularly in their malposition—is directly traceable to a lesion or enervation of the trigeminal nerve; it is an interference more or less prolonged and operating at its origin"; but the causes for this interference were not far to seek. Whenever we have the blood supply drawn from this nerve centre, from whatever cause, we should have derangement of its functions; this might be due to undue stimulation of the brain (overpressure), or prolonged disease of any organ or portion of the body, or any general nervous derangement, such as infantile convulsions, epilepsy, chorea, or paralysis. With all this, however, he found it hard to discover where intelligence came into play. He thought, therefore, that the contraction of the dental arch was probably not due so much to intellectual interference as to atrophy from the disuse of surrounding muscles. He had been unable to trace any relation between intelligence and deformed jaws, nor had he found any proof of it in Dr. Kingsley's book, unless he held that education and intelligence were synonymous terms. Now education had been defined as the "art of drawing out or developing the faculties of human beings for the functions for which they are destined," whilst the intellectual powers were explained in part by their contrast with feeling and will. When we enjoy pleasure or pain we are said to feel; when we act to procure the one or avoid the other we put forth voluntary energy; when we remember, compare, or reason, our intelligence is exerted. Precocity by over nervous stimulation might bring about irregularities, but then precocity was not intelligence, and it was scarcely possible that the workings of the intellect of a child between the ages of four and seven could materially effect such an

interference as they were considering. There could be little doubt that to the overpressure at primary schools must be attributed many sad effects both on the general health and on the teeth, but it must be remembered that those by whom this pressure was most felt were those of least intelligence.

Altogether, he had come to the conclusion that this insidious contraction of the jaws was not due so much to a psychological as to a physical refinement, a refinement which might be traced to the gradual desuetude of the muscles. Our ideal of the intellectual giant was not associated with contracted features, but rather with the strongly marked bony framework and the massive under jaw. Although it would not be true to say that a great intellect never dwells within a deformed body, yet it would generally be conceded that the healthier the body and the freer it is from deformities, the stronger, and, in a broader sense, the more healthy would be the intellect.

Mr. CAMPBELL agreed in the main with the views so clearly expressed in Dr. Kingsley's paper. It was of the first importance to have a clear idea of correct principles, which, when thoroughly understood, could be brought to bear upon each particular case. It would have been extremely interesting to have seen a few of the ingenious appliances made use of by Dr. Kingsley for regulating teeth. The plate used by him, and shown by Mr. Finlayson, for "jumping the bite," was quite a new idea to him; he had recently a similar case to that now before them, the superior central incisors projecting considerably beyond the lower. He told the young lady's mother that twenty years ago he would have taken her daughter's case in hand at once, and, no doubt, would have succeeded in bringing the teeth into a proper circle, but experience had taught him the difficulty of retaining teeth so moved in their new positions. He thought it quite possible "jumping the bite" might be the correct treatment in the case referred to. He could not help expressing surprise that Dr. Kingsley had made no reference to Dr. Coffin's split plate for expanding the arch; he (Mr. Campbell) did not know of any appliance which would compare favourably with it for simplicity and efficiency. In reference to Dr. Kingsley's remark, that "in the higher social scale it is exceptional to find a young person with a developed and regular row of teeth set in a well formed and perfectly rounded arch"—he had no doubt that Dr. Kingsley was correct in respect to the United States, but he would

give as the result of his observations, that the upper classes in Scotland had, as a rule, well developed maxillæ and fairly regular teeth.

The SECRETARY (Mr. Amoores) agreed with most of the remarks made by Mr. E. A. Cormack. He was certainly not of the opinion that those whom we were accustomed to look upon as owning a giant intellect were possessed of small jaws; he knew of one in which this was reported to be the case, but he could put against that a far greater number who had a jaw more resembling the square set type to which Mr. Cormack had referred. Undoubtedly healthy vigorous exercise tended very strongly towards the development of a well formed bodily frame, and if, after the acquirement of such a condition by a certain class of people, it were to be perpetuated by intermarriage, we should expect to see the jaws and teeth share in the beneficial results. The British aristocracy, as had been remarked by Mr. Campbell, had, as a rule, well developed maxillæ and good dentures, and in our own country that class approach more nearly the conditions just described than any other. Apart from Mr. Campbell's experience, he knew, from those who had good reason for their statement, that among the upper ten, where early mental training was usually associated at the public schools with abundant vigorous exercises, and where from social reasons intermarriage among members of that class was the rule, we found both well formed jaws and good teeth, and he thought that many members of the British aristocracy might fairly be taken as types of well developed humanity, both physically and intellectually.

The PRESIDENT said the discussion had gone a little more into the causes of dental irregularities than into their treatment. Whatever might be the case in America, he thought they would all agree with him in saying that here, overcrowding of the teeth and contraction of the jaws were not peculiar to any social class, but pervaded all, being probably least marked in the higher classes.

In that class of cases with which some amount of mental weakness was by some authorities associated, they found the arch of the *upper* jaw irregularly contracted, the incisors, especially the centrals, rather prominent, and the vault of the palate high, while the arch in the lower jaw was comparatively much wider, the incisors closing decidedly within the uppers, so giving an apparently

great recession of the chin. In these cases a great deal could be done by opening out the arch, for which purpose Coffin's split plate was pre-eminently adapted. The series of models of the two cases sent by Mr. Matthew illustrated its advantages very markedly, and he much regretted that Mr. Matthew had not been present, so that they might have had his course of treatment explained in detail. In the more complicated case the curvature had been so widened and rounded that it was a little difficult to realise that the first and last were models of the same mouth. He, like Mr. Campbell, had been struck by the absence of all mention of Dr. Coffin's contrivance in Dr. Kingsley's paper, possibly it was included in the general term wedges, as used in it.

In those cases in which there had been enormous development of the cranium at the expense of the maxillæ, the lower jaw was proportionally as narrow as the upper, in many cases even more so, and, in his opinion, irregularity in this was best treated by removal of some of the teeth.

Nature seemed to be experimenting on the subject, witness the much more frequent suppressions of the lateral incisors, especially in this class of cases. He quite agreed with Dr. Kingsley's remarks as to the very persistent tendency shown by teeth which had originally projected to return to that position, more especially when the irregularity was hereditary, at the same time, he thought, there was less of that tendency when there had been some of the teeth removed.

He was much pleased that the subject had led to such a free expression of opinion among them.

The Odontological Society of Great Britain.

THE Annual General Meeting of the Society was held at 40, Leicester Square, on the evening of Monday, the 12th inst., Mr. J. S. TURNER, President, in the chair.

On taking his seat, the President declared the ballot open for the election of the office-bearers of the Society for the current year, and Messrs. A. C. Harris and W. H. Woodruff were chosen to act as scrutineers.

The Hon. Treasurer, Mr. JAS. PARKINSON, then read his report, which showed that the total expenditure of the Society during the past year had been £463, whilst the receipts had been £603,

leaving a balance in hand of £140. The Society possessed invested funds and cash in hand amounting to nearly £2,500. The number of members enrolled amounted to 318, exclusive of honorary members.

Mr. WEISS, the Librarian, reported that a larger number of books had been borrowed during the past than in any previous year, and there had been no losses. Twenty-three volumes, exclusive of periodicals, had been added to the Library during the year, including all the principal English and foreign works on dentistry which had appeared.

The Curator (Mr. HUTCHINSON), said that since the last edition of the catalogue was issued, in January, 1882, 125 specimens had been added to the museum, and a supplementary catalogue had now been prepared, which would be issued with the January number of the *Transactions*. He believed that the Society's museum was, as an Odontological collection, second to none, and he hoped members would, by a continuance of their donations, maintain it in this position. He also exhibited a model sent by Mr. Paxton Harding, showing two supernumerary lateral incisors, one on each side of the upper jaw.

Mr. OAKLEY COLES showed a very curious instrument, used by the natives of the Congo for the purpose of cleaning the teeth, and also an adjustable dental seat, the invention of Mr. Henry Greenfield, which he (Mr. Coles) had found very comfortable and useful in his practice.

Mr. STORER BENNETT showed the skull of a gorilla, which exhibited evidence of considerable damage to the facial bones, received during life. The special point of interest was, however, the presence of a supernumerary tooth on the inside of the ascending ramus of the right side of the lower jaw.

The SECRETARY then read a communication from Dr. E. A. Bogue, of New York, describing a very ingenious instrument for separating the teeth by means of a screw, which he claimed would effect its purpose with much less pain, and with greater certainty, than the wedges of cotton, wood, &c., commonly used. He had himself used the instrument for four years, with great satisfaction to himself and to his patients.

The PRESIDENT then called upon Mr. STORER BENNETT to read his paper on "The Herbst Method of Gold Filling," of which the following is an abstract :—

The attention of the profession in this country was first called

to the method of filling teeth with soft gold, rendered cohesive by means of burnishers rotated in the burring engine, first practised by Dr. Herbst, of Bremen, by an article in the JOURNAL OF THE BRITISH DENTAL ASSOCIATION for April last, but apparently little notice was taken of it. Towards the end of last summer, Dr. Herbst's brother visited England, and gave a demonstration at the Dental Hospital of London; unfortunately, this was just at the commencement of the autumn vacation, and the subject again received but little attention. Later in the year, however, Mr. Bennett was induced to perform a series of experiments, and these proved so satisfactory, that he determined to bring the subject before the Society for discussion.

Dr. Herbst, who has used this method for six years, claims that by it a solid, hard gold filling, and more perfect adaptation of the gold to the walls of the cavity, can be obtained, with greater ease, and with far less expenditure of time, than by any other method.

The details of the process are very clearly explained in an article by Dr. Bodecker, published in the November number of this Journal, but may be more briefly described as follows:—It is, in the first place, necessary to have four walls to the cavity, and where these do not exist they must be temporarily supplied by a matrix. To take as an example a distal cavity in an upper second bicuspid, with the masticating surface also involved. A piece of clock-spring, wider than the cavity, is firmly wedged between the bicuspid and first molar, if that be standing. The cavity is then prepared in the usual way, care being taken that its interior is larger than its entrance; undercuts may be made, but are not essential, and no retaining points are required. The edges of the enamel should be smoothed and polished, but left square, not bevelled. The rubber dam having been applied, the cavity is loosely filled with large, soft cylinders, unannealed. A polished steel burnisher, as large as the mouth of the cavity will admit, is then introduced, and slowly rotated by the engine, whilst, by firm, steady pressure, the gold is squeezed towards the floor and sides of the cavity, until the gold is thoroughly compressed, and presents a highly polished, non-cohesive surface. A bluntly-pointed instrument is now substituted for the pear-shaped burnisher, and with this the surface of the gold is "prodded" all over, the engine being rotated more rapidly, and moderate pressure being used. The gold is thus still more thoroughly condensed,

loses its polished surface, and becomes converted into a hard, solid mass of cohesive gold. The cavity is then again filled with cylinders, and these are treated in the same way, the process being repeated until the cavity is quite full, when the matrix is removed, and the filling smoothed and polished in the usual manner; but if the process has been properly carried out, but little polishing is required. When in use the burnishers become coated with gold, which must be removed from time to time, by rotating them on a piece of fine emery paper, or on a block of pure tin. Care must be taken that the instruments are not kept too long in contact with the filling, else such an amount of heat will be developed as will be painful to the patient. In all cases the matrix should extend well beyond the margins of the cavity, both towards the cervical edge and the grinding surface; unless it extends well beyond the grinding surface, the application of the last layers of gold is a very tedious part of the process.

When a corner of a tooth, as, for instance, an upper incisor, is to be restored, the same general principles are observed, though the mode of applying them must be varied. To form a matrix, the tooth to be operated on, and two or three adjoining it, are imbedded in softened shellac, brought well over the cutting edges of the teeth, and between them; should any of it have invaded the cavity, it should be removed when cold with an excavator. A better plan is to imbed a piece of clock-spring in the shellac, or to mould some platinum foil round the tooth, and surround this with shellac, as the metal gives a better surface to the filling. Interstitial cavities in adjacent teeth may often be filled together, a matrix being formed, a few cylinders placed in one cavity and condensed, then a few in the other, and so on, until both cavities are filled, and united by one filling; this is then divided by passing a needle through it, and completing the division with a fine file, the two fillings being afterwards finished off in the usual way.

The saving of time effected by this method is very considerable, the adaptation of the gold to the walls of the cavity very perfect, and on splitting a tooth thus filled, the filling, although made with soft, unannealed, non-cohesive cylinders, will be found as solid as a piece of cast metal; it may be beaten on an anvil into a thin sheet, without breaking up. Patients also greatly prefer it to the ordinary method of malleting, as being less unpleasant. Dr. Herbst always uses gold prepared by Carl Wolrab, of Bremen, but

Mr. Bennett had found the soft cylinders of Messrs. Jamieson also work extremely well. Tin-foil may be worked in the same way, and can be packed more easily and rapidly than gold, and a filling may be begun with tin and completed with gold. Mr. Bennett had tried platinum also, but had been unsuccessful.

The conclusion which he had arrived at, as the result of his observations, was, that this method afforded a very rapid, and he believed, reliable, means of filling tedious and somewhat difficult cavities in teeth, when, one or more of the walls being absept, it is necessary to resort to cohesive filling in order to restore the missing portion. The method became easy after a little practice, the most troublesome part being the accurate adaptation of the matrix. In conclusion, he handed round for inspection some specimens of the fillings made by himself.

A long and interesting discussion followed, in which Messrs. Vasey, Coles, Hutchinson, Coffin, Cunningham, the President, and others, took part, and of which, if our space permits, we may possibly give a report next month.

Mr. BENNETT having replied, the Scrutineers reported that the following gentlemen had been elected to fill the various offices of the Society during the current year :—

President : Mr. C. Spence Bate, F.R.S.

Vice-Presidents—Resident : Messrs. T. Charters White, George Gregson, and Henry Sewill ; *Non-resident* : J. T. Browne-Mason (Exeter), Richard White (Norwich), and Andrew Wilson (Edinburgh).

Treasurer : Mr. Jas. Parkinson.

Librarian : Mr. Felix Weiss.

Curator : Mr. S. J. Hutchinson.

Editor of the Transactions : Mr. Oakley Coles.

Honorary Secretaries : Messrs. David Hepburn (Council), Robert Woodhouse (Society), and Storer Bennett (Foreign Correspondence).

Members of Council—Resident : Messrs. F. Canton, Alex, Cartwright, Chas. S. Tomes, W. St. George Elliott, Augustus Winterbottom, Samuel Cartwright, A. Morton Smale, J. H. Mummery, and A. S. Underwood ; *Non-resident* : Messrs. J. F. Cole (Ipswich), G. C. McAdam (Hereford), W. E. Harding (Shrewsbury), Robert Reid (Edinburgh), J. R. Brownlie (Glasgow), and J. H. Whatford (Eastbourne).

The PRESIDENT then proceeded to deliver his valedictory

address. A post of honour might be coveted, and accepted with eagerness when the opportunity of gaining it arrived, or it might be accepted with much misgiving when offered ; in either case the acceptance was a voluntary act. Not so its resignation ; the time came to everyone when, whether he would or not, the robes of office fell off, and he had to step down from his exalted position, and make way for another. That moment had now arrived for him ; his successor had been elected, and he had to resign to that successor the trust which had been confided to him twelve months before. He congratulated the Society on having elected as their new President a gentleman whose scientific ability and reputation were only second to the deep and practical interest he took in the progress of his profession. Under the Presidentship of Mr. Spence Bate, F.R.S., he anticipated a session of more than usual interest.

They had listened to very satisfactory reports from the Librarian and Curator. The Society's fine collections of books and of specimens had been brought into an excellent state of order and accessibility. The Council had responded liberally, and he thought wisely, to the calls which had been made upon the funds of the Society for the maintenance and improvement of both Library and Museum, but notwithstanding the somewhat heavy expenses which had been incurred during the year, the Treasurer had been able to report a substantial balance in hand. To these gentlemen, as well as to the Editor of the *Transactions*, and the invaluable Secretaries, the thanks of the Society were due, for the zealous manner in which they had discharged their self-imposed labours.

He had now to turn to less pleasant topics. During the past year they had had to mourn the loss of Mr. Alfred Rogers, of Cambridge, Mr. W. I. Doherty, of Dublin, and Mr. J. D. Grant, of Jersey, and on the 10th inst. it had been his sad duty, as the representative of the Society, to follow to the grave the remains of Mr. J. R. Mummery, an ex-president, and one who had been up to within a recent period a constant attendant at the meetings and a frequent contributor to the *Transactions*, whilst his reputation as an ethnologist had extended far beyond the narrow circle of the Society. Many would miss in him a genial, warm-hearted friend, not easily to be replaced.

The fact that the Society had lost twelve members by deaths and resignations, whilst only seven new members had been elected

during the year, was not altogether satisfactory. A considerable number of students passed into practice yearly from the London Dental Hospital alone. They had during their student career, by the liberality of the Society, enjoyed the free use of the library and museum, and he could scarcely conceive how men could prosper in practice and forget this fact, or, remembering it, not give their support to the institution which had treated them so generously.

The changes which had been introduced into the working of the Society during the past year had been slight. Personally he had refrained from proposing innovations for several reasons. In the first place, because he thought that recent changes required consolidation before attempting fresh ones; and in the second, because he thought that the desire for change should make itself felt from without, by members communicating their wishes to the Council. A reforming President might easily succeed in leaving a legacy of trouble to his successor which the shortness of his own tenure of office enabled him to escape. Let the members think carefully over the working of the Society, and how it could be improved, the Council would be most ready to do anything to increase its prosperity; let them also do their best to induce their personal friends to join the Society, and impress upon them the fact that in taking this step they would benefit both themselves and the profession.

On the conclusion of the address, a vote of thanks to the President, for the time and attention he had given to the business of the Society during his year of office, was proposed by Mr. CHARTERS WHITE, second by Dr. CUNNINGHAM, and carried with much applause.

A vote of thanks to the Hon. Secretaries, Treasurer, Librarian, Curator, and Editor of the *Transactions*, was then proposed by Mr. OAKLEY COLES, seconded by Mr. TOD, of Brighton, and also carried with acclamation.

After a few words in reply, from Mr. PARKINSON, and the PRESIDENT, the Society adjourned, after an unusually prolonged meeting.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Tin and Gold Combined as a Filling Material Electrically and Practically Considered.

By W. D. MILLER, D.D.S., Berlin.

It is not known who first ventured to use a combination of tin and gold for filling teeth. About eighteen years ago a gentleman called upon Dr. Abbot, Berlin, to have his teeth examined. In one of them Dr. Abbot found a discoloured filling, having the appearance of amalgam, and remarked that it was the best amalgam filling he had ever seen, to which it was replied that the filling consisted not of amalgam, but of a mixture of tin and gold foils. Since that time Dr. Abbot has used this filling material in his practice very extensively, and in former years strongly recommended it to the profession. It has, however, been adopted by only a limited number, owing, no doubt, in part to the prevalence of a wide-spread superstition that the electricity attendant upon such a filling will in some way or other be injurious to the tooth. The electrical conditions connected with a filling of this nature can be understood only when the arrangement of the two materials in the filling is perfectly appreciated. The material is prepared by laying from 1-6 to 1-3 of a sheet of No. 4 non-cohesive (Abbey) gold foil upon a similar strip of No. 4 tin-foil, and twisting between the fingers into a soft crumpled roll.

It is immaterial whether the tin or gold is on the outside. Some prefer the former; others the latter. Frequently both materials appear on the surface, something like a barber's pole. These rolls are worked in the same manner as strips of non-cohesive foil, or they may be cut into pellets and worked as non-cohesive cylinders. It follows from this method of preparing the material that the two elements, tin and gold, must be pretty evenly distributed throughout the mass.

There result accordingly upon the surface of such a filling an indefinite number of indefinitely small electric currents flowing in all directions. Since, however, it could happen only by chance that a very great excess of those currents would be directed towards the margin or surface of the cavity, it is not possible to see how any action, either upon the hard tissue of the tooth or upon the pulp, could result from them. We will find a definite negative solution of this question further on.

A question which has given rise to some discussion in America is that regarding the influence which the tin is said to have upon the supposed electrical condition of the tooth itself. We have been told that by lining the walls of the cavity with tin, "the tin being electro-positive, makes the tooth electro-negative, and therefore the tooth is guarded from injury from acids." This explanation is very short, but nevertheless involves some very considerable errors :

First. The supposition that the tin must be placed on the outside to insure success is not in accordance with the facts ; it is quite immaterial which is outside ; in fact, Dr. Jenkins, who next to Dr. Abbot has had more experience in this matter than any other living man, always folds his rolls with the gold outside.

Second. The tooth being a non-conductor cannot receive a potential, either positive or negative, by mere contact with a metal. This point I established some years ago so clearly that even those of contrary persuasion could offer no other objection than that my experiments were made with normal dentine, and that carious (decalcified) dentine would have given other results because of the electric current between the metal and the organic portion of the tooth. Even this objection is, however, merely fanciful, because the dentine used in my experiments, though normal at the very beginning of the experiment, was not so five minutes later, and at no subsequent moment during the whole course of the experiment, on account of the decalcification produced by the acid solutions in which it was immersed.

Third. Granted that an electric element *could* be produced by the contact of gold with tooth-bone in the fluids of the mouth, the electro-motive force of such an element would not be changed in the slightest degree by interposing tin between the gold and dentine, the difference of potential between any two conductors being independent of the number of conductors which may be interposed between them. For example, in each of the following series, the difference of potential between the gold and dentine would be the same : (1) gold-dentine : (2) gold-tin-dentine : (3) tin-gold-dentine : (4) gold-tin-copper-zinc-etc., etc.-dentine. Consequently by interposing tin between the gold and dentine we would not prevent or reverse the current ; we would only increase to a certain slight extent the resistance of the cell. We would, however, obtain a second current (between the tin and dentine), and a third (between the tin and gold).

As for the first and second current, (between gold and dentine, and between tin and dentine,) whether they would flow in the same or in opposite directions we do not know ; the supposition that the dentine is electro-negative to tin and electro-positive to gold, being by no means entitled to the dignity of an established fact.

The explanation offered above is consequently faulty. First, because it presupposes a state of things different from that which really obtains ; second, because to account for this supposed state of things, it assumes an electrical condition of the tooth which has been proven not to exist ; third, because the conclusions given as the result of this assumed electrical condition are not based strictly upon facts, either experimental or theoretical.

Since I have been in the practice of dentistry I have made over one thousand fillings of tg* and have had the opportunity of observing at least as many more, partly made with the tin next the walls, partly with the gold next the walls, partly mixed, many also begun with tg and finished with gold alone ; I have not been able to detect the slightest difference in the result, and cannot say that one method is better than the other. This is also the testimony of others who have used the material much longer than I have.

Again, the combining of tin and gold in one filling has in my practice had no effect upon the dental pulp. It is stated in text-books that it is bad practice to begin a filling with one metal and finish with another, that such an operation is likely to be followed by disastrous results, etc. ; this for all combinations of tin and gold is not the case.

It is my practice to begin *all* fillings in large cavities, where the structure is poor or the dentine soft and sensitive, or where it is impossible to get a strong, sound margin at the neck of the tooth, or to secure perfect exclusion of moisture, with tg, and then build the gold directly upon this ; also all inaccessible points I fill with tg ; also all deep pinhole cavities on the grinding surface I fill to one-third or one-half with tg and complete with gold, and I have yet to see the first case in which the slightest disturbance of the pulp resulted from this treatment.

We may say therefore that neither experimentally, theoretically, nor practically can any good or bad result be expected from the electrical action of a tg filling upon the tooth-bone ; neither have we to fear a disturbance of the pulp from the use of tin and gold in

* I use the symbol tg to denote a combination filling of tin and gold.

any form in the same cavity. (Here, of course, no reference is made to those cases where a large gold filling in one tooth is brought into contact with a large filling of tin or amalgam in the adjoining tooth.)

We therefore, as far as the tooth is concerned, dismiss the question of electrical action altogether, and will now consider what are the qualities of tg which render it a desirable material for filling teeth.

First. It may be inserted with an ease and a rapidity scarcely equalled by any material in use. This is especially the case with shallow crown fillings. Medium-sized fillings of this class may be easily inserted in the time required to mix either amalgam or oxyphosphate when the acid of the latter is in the form of crystals.

This property makes it particularly adapted for the treatment of the temporary teeth, where the cement fillings generally prove a failure. Two minutes is abundantly sufficient for simple cavities in the temporary teeth. Again, for partially erupted teeth it may be used to a very great advantage. We often find molar teeth requiring fillings on the grinding surface when they are only half erupted. To cut away the gum adjust the rubber-dam and insert a gold filling would be a very long and painful operation; and even if its success were sure, it would be very impolitic to subject young patients to it; cement in such cases is useless, and amalgam, to many, for various reasons, objectionable. In tg we have a material which, with no other protection against moisture than a napkin, may be inserted in from two to five minutes, and will be equally permanent with the best gold filling, and often more permanent. This brings us to another excellent quality of tg, viz :

Second. The presence of a slight amount of moisture does not at all impair the success of the filling; it is even not sure, for reasons given below, but that the filling is benefited thereby. I have made a number of fillings, by way of experiment, completely under saliva; after a few weeks one cannot tell but that such fillings have been made with perfect exclusion of moisture. It cannot be denied that a filling material which is not injured by moisture possesses an enormous advantage over gold or cement.

This property may be well utilized in cases where it is not expedient to remove all the softened dentine, and where a complete sterilization of the cavity cannot be accomplished by a single application of the antiseptic. In this case the cavity may be thoroughly

bathed in carbolic acid, or one per cent. sublimate solution, and the tg inserted without drying ; or the first piece may be dipped into one of the above-named antiseptics and placed in this state upon the floor of the cavity.

Third. Tg adapts itself with great readiness to the walls of the cavity, and may be used in saucer-shaped cavities where neither gold nor amalgam could be made to stay, except by means of strong retaining points or grooves.

Fourth. Tg in the course of a few weeks after insertion undergoes a marked change, the cause of which is not well understood ; it results in a discolouration of the filling (which sometimes is but slight and at other times amounts to complete blackness) ; furthermore, in a slight expansion of the filling, thereby making it watertight, if it was not before.

If we remove the surface from an old tg filling, we will find beneath neither tin nor gold, but a semi-crystalline mass which it is sometimes impossible to distinguish from amalgam. This change, as well as the slight expansion, appears to take place sooner in a filling which has been inserted wet than in one inserted perfectly dry. For this reason I mentioned above that such a filling might even be benefited by a certain amount of moisture. As for the manner in which the discoloration, expansion and amalgamation (?) of such fillings are brought about, a number of theories might be offered ; there is little benefit, however, to be derived from a theory not properly supported by facts.

It is significant that an attempt to collect a sufficient number of old tg fillings to make a chemical study of the question did not succeed, it being exceedingly rare that a filling either becomes loose or requires renewing, whereas, as we all know, our gold fillings are failing almost daily.

To recapitulate. Tin and gold, used in the manner first advocated by Dr. Abbot, owes its virtues to the ease and rapidity with which it may be inserted, to its marked adaptability ; to its freedom from injury by moisture, and to its slight expansion after insertion. It does not owe any of its virtue to any supposed electrical action upon the tooth itself.—*Independent Practitioner.*

Dento-Embryonal Histology and Technology.**By W. XAVIER SUDDUTH, D.D.S.****DEMONSTRATOR OF HISTOLOGY IN PHILADELPHIA DENTAL COLLEGE.**

THE study of the minute anatomy of tissues, by the aid of the microscope, is to-day an established branch in the curriculum of nearly all medical colleges, and should be in all dental colleges. We have made grand advances during the past ten years ; let us make the next decade grander still. We constantly hear the complaint from dentists of their non-recognition by the medical profession. Gentlemen, the fault lies in ourselves. Let us prove ourselves worthy of recognition, and it will be accorded without reserve. What we of the D.D.S. need is more D.D.S. One of the essentials for successful practice is a thorough knowledge of the tissues which we are called upon to treat. It is my aim in this paper to give some of the methods of obtaining and preparing tissues especially pertaining to dental anatomy, and an interpretation of what they will show, with the view of interesting the members of the profession in a subject which every one who cares to be well, or even fairly well, posted should be familiar with in an experimental way.

The methods of hardening, cutting, staining, and mounting that tissues must go through before they are ready for examination seem tedious at first ; but when we understand the why and wherefore they are simple enough, and we follow the regular routine as a matter of course. In regard to the expense, the beginner does not require a very extensive list of apparatus ; as he advances in his knowledge he can add, little by little, and thereby not feel the additional outlay ; the greatest outlay being in the higher-power objectives for finer histological study. Low powers and topographical studies are best suited for the tyro in microscopy, and are not expensive.

As regards reagents and stains, the fewer and simpler that obtain a given result the better. Leave complicated processes and staining to more mature years. Fifty dollars will cover the outlay necessary to demonstrate the development of the teeth in the most practical manner. I would advise the purchase of a cheap microscope, as you will find that, by the time you have learned to properly use your instrument, it will not be worth very much, and the same would hold true of a more expensive one.

There are a great many hardening fluids, but for our needs a one per cent. solution of chromic acid is best. It decalcifies as well as hardens. This is made by adding thirty grains of chromic acid to

a quart of water. The tissues (as fresh as possible) should be put into the solution and the fluid changed every other day for one week; then left until completely decalcified. They are then to be placed in seventy-five per cent. alcohol to remove the chromic acid. This should be changed as often as it becomes cloudy. Tissues can be prepared in this manner in quantity, and kept in alcohol until needed.

For the demonstration of the development of teeth, I have found foetal pigs the most readily obtained in good condition. A series of these should be secured, ranging in length from one inch to six inches; the first presenting the beginning of the development of the teeth, and the last being as large as practicable for study in the pig. For sections of fully-developed teeth, young kittens or rabbits are best adapted. To prepare the material, disarticulate the inferior maxillæ, and place each in a separate bottle filled with one per cent. solution of chromic acid; suspend the jaw in the fluid by means of a string; label, cork, and put away. After the jaws are completely decalcified, which can be ascertained by trying to pierce them with a needle, they may be imbedded in one of three ways: First, they may be placed between pieces of hog's liver previously hardened in alcohol, and thin sections cut with a razor, ground flat on one side. Very good sections can thus be made. Second, make a thin mucilage by dissolving picked gum-acacia in warm water; place the tissues in water for twelve hours, then put them in the mucilage over night; remove and place in alcohol to precipitate the gum; hold between pieces of liver and make sections. This method keeps the parts *in situ* fairly well, which is of great advantage in the study of the development of the teeth. The disadvantage is that the sections must be placed in water to remove the gum before staining, with consequent risk of displacing parts. They can be mounted in glycerine, and studied without other staining than that which they have received from the chromic acid. These, however, do not make good, permanent specimens. Third, a new method of imbedding has lately been given to the profession by Scheiferdecker, that has very greatly added to the advance of microscopical technique, viz., celloidin. Celloidin is a perfectly pure preparation of pyroxyline. The best method of preparing this imbedding mass consists in making a saturated solution of celloidin in equal parts ether and alcohol. The decalcified specimen is first placed in equal parts ether and alcohol for twenty-four hours; then soaked for the same length of time in the celloidin, so as to

thoroughly penetrate the tissues with the celloidin ; next, make a small paper box, in which place the specimen and cover with thick celloidin solution ; then place under a bell-glass, raised slightly from the table, and leave over night. The imbedding mass will shrink very considerably, for which allowance must be made in size of box and quantity of mixture used. The shrinkage is due to the evaporation of the ether and alcohol. When the mass is sufficiently hardened, which will require a longer or a shorter time according to the size of the mass, place in a mixture of equal parts alcohol and water to harden ; then remove the paper box, and cut sections with a flat razor dipped in equal parts alcohol and water ; float the sections off on the same fluid. Strong alcohol must not be used, as it softens the mass. The sections may be kept in a bottle, filled with equal parts of water and alcohol, until needed for use.

A word in regard to section-cutting may not be amiss. Besides the flat razor, which will do for all ordinary work, there are several microtomes in use, the best of which is Thoma's. This microtome is capable of cutting sections $\cdot 001$ of a mm. in thickness ; the thinnest known are $\cdot 002$ mm. The inclination of the oblique plane upon which the object-holder slides is 1 in 20, consequently, the section will be $\frac{1}{20}$ of a mm. thick when the carrier is moved one mm. on the oblique plane. Every revolution of the carrier-screw pushes the object-holder $\cdot 03$ mm. The periphery of the carrier-screw is divided into 15 parts. Turning the screw, one of these parts makes a section $\cdot 001$ mm. thick ; most of my sections are $\cdot 015$ to $\cdot 025$ mm. thick, or from $\frac{1}{1000}$ to $\frac{1}{800}$ of an inch. Having cut our sections, we are ready for the staining and mounting process.

If it is desired to mount in balsam, which I consider the best for permanent tooth preparations, either one of two methods may be used. First, the dehydrated stained specimens may be placed in a dish containing oil of cloves, and the celloidin removed, after which they may be mounted in the usual manner. Second, the unstained sections may be placed on the slide, on which there has previously been dropped a sufficient quantity of oil of cloves to fix but not to float the section, after which it may be stained on the slide, dehydrated, and mounted in the usual way. The latter is especially applicable to very large, thin sections, as it obviates the necessity of re-handling.

I have found that embryonal tissues do not permit of very elaborate and complicated staining methods. The brilliancy of

the result depends on a combination of different tissues with their different chemical reactions. These are found only in mature tissues, especially in the lower order of animals. The best result I have obtained has been in sections of the head of the newt and common snake. For the demonstration of the teeth, only four stains are requisite, viz.: Hæmatoxylon, or logwood, eosin, picrocarmine, and methyl-green, valuable in the order named; or as double-stains in combinations of hæmatoxylon and eosin, hæmatoxylon and picrocarmine, eosin and methyl-green, and picrocarmine and methyl-green. Double-stains give the best results. Tissues that have been hardened in chromic acid require to be placed in a one per cent. solution of carbonate of soda for from fifteen to twenty minutes, to remove the chromic acid. To double-stain sections thus prepared with hæmatoxylon and eosin, which is by far the best double-stain for general use, add ten drops of hæmatoxylon to a watch-glass of distilled water, place the sections in it, and let them remain one or two minutes, or until they assume a light straw colour; thoroughly wash in ordinary water and place in the eosin-stain. Dehydration and eosin staining can both be accomplished at the same time; a matter of considerable importance, if you intend to mount in balsam. To do this, keep on hand a saturated solution of eosin in absolute alcohol. When a stain is wanted, add a few drops of this solution to a watch-glass of ordinary alcohol. Having stained the tissues, rinse in absolute alcohol, and place on the slide; with a camel's hair brush or pipette, drop several drops of oil of cloves on the section; set aside and allow to clear up, which will require several minutes. Examine from time to time, under the microscope, without placing the cover-glass. When sufficiently clear, remove the surplus oil of cloves, and drop on the section sufficient balsam, thinned with chloroform, to cover the section; then place the cover-glass and put aside for the balsam to harden.

For the other double-stainings, place several sections in a one-half per cent. solution of picrocarmine, made after the following formula :*—Carmine, 1 gramme; liquor ammonia, 4 c. c.m.; water, 200 grammes; mix and add 5 grammes picric acid; shake thoroughly. After settling, draw off, so as to leave the undissolved picric acid behind. Evaporate in a shallow dish in open-air. A red powder is thus obtained, with which a one-half per cent. solu-

* Frey.

tion with distilled water is to be made, and allowed to stand several days, when it can be filtered, and is ready for use. Sections should be allowed to remain in this solution at least twenty minutes; longer does not matter. When sufficiently stained, remove to a watch-glass of distilled water, which has previously been acidulated by adding a few drops of acetic acid; this brings out the colour and fixes it. To double-stain these sections with hæmatoxylon, place in dilute hæmatoxylon for a few minutes; wash in water; dehydrate in alcohol; place on slide; clear up with oil of cloves, and mount in balsam. To double-stain with methyl-green, take the sections previously stained in picro-carmin, and place them in a one per cent. solution of methyl-green in alcohol and water (10 parts alcohol, 90 parts water) for several minutes; this will over-stain. Next, place in absolute alcohol, which will remove the excess of green. When the right shade is procured, which can be ascertained by trial, place on the slide, add oil of cloves to clear up, and then mount.

To double-stain with eosin and green, first stain with eosin, and then wash with water, to which has been added a few drops of hydrochloric acid—this fixes the stain; then over-stain in green, decolorize in alcohol, place on the slide, add oil of cloves to clear, then mount.

Having thus obtained, stained, and mounted a series of specimens, let us study them and see what they will show, commencing with our smallest foetal pig. $2\frac{1}{2}$ centimeters in length, of which we have made horizontal transverse sections of its inferior maxilla. The first sections remove the surface of the gum and simply show epithelial tissue; but a few sections deeper we find a furrow or band filled with small round cells. The outer sides of this band are composed of cylindrical cells. This band extends the entire length of the jaw; on either side of the band the jaw is made up of embryonal tissue, while on its labial and lingual aspect we find epithelium. Vertical transverse sections of the band of the same-aged foetus show the band V-shaped in the anterior part of the mouth. The band or groove, filled with small round cells, is deepest at the anterior portion of the jaw, and gradually diminishes in depth until it disappears,—flattens out into the epithelium covering the jaws. This disappearance occurs at about the point where the cords for the molars arise. Sections cut from the anterior portion of the mouth show the band well defined, while those cut in the posterior portion will present no appearance of the

band at any age, the cords for the temporary molars arising directly from the epithelium of the jaws.

Our next foetus is three centimeters long ; sections from its inferior jaw cut in a vertical transverse direction, show the band expanded at its deepest extremity by internal proliferation of cells. Just previous to the formation of the cord the band seems to be indented on its deepest surface its entire length, and a lamina formed on its inner side. Horizontal transverse sections through this portion of the band show six lines of epithelial cells, instead of four, as will be seen if made earlier or through a more superficial part of the band.

The indentation having progressed somewhat farther, produces the lamina ; and the section being made at the deepest portion, shows the two layers of epithelial cells which form the lamina in apposition as also are those of the band. The development thus far has been general, and has reference to the formation of all the temporary teeth.

From the inner side of this lamina, at such intervals as correspond to the position to be occupied by the temporary teeth, small buds shoot out and extend until they become slender cords.

Vertical transverse sections of the band, in the intervals between the cords, show that the band has shrunk back into its original V-shape, the tension having been apparently relieved by the bursting forth of the cord. Vertical transverse sections from the jaw of a $3\frac{1}{2}$ -centimeter pig show the internal development of cells, continuing with unabated energy in the deepest portion of the cord of the inferior central incisors, to which we shall confine ourselves in future descriptions. Vertical transverse sections from the jaw of a 4-centimeter pig show very little change.

The lower portion of the cord has increased slightly by internal proliferation, and now presents a bulbous appearance, and very much resembles a Mattson syringe with a short nozzle. With these changes it has become more deeply imbedded in the substance of the jaw. At first the cord stood nearly at right angles to the band, but as development progressed it curved in towards the axis of the band, thus assuming a sickle shape.

A horizontal transverse section made of the jaw, at this stage of development, will show a vertical transverse section of the cord lying beside a longitudinal transverse section of the band. Studying sections from the jaw of a 5-centimeter pig, we notice the bulbous portion of the cord has become flattened at its deepest extremity.

This flattening is caused by contact with a new element, viz., the dentinal papilla, which now enters into the future development of the tooth. The papilla or pulp is a growth from the sub-mucous tissue of the jaw ; its growth is upward or toward the surface of the jaw, while the growth of the cord has been downward, or into the substance of the jaw. Just how the papilla is formed or why it should come into contact with the cord I am unable to demonstrate. The cord now presents the appearance of a "chip-blower," *i.e.*, is pear-shaped, and shows the beginning of the process of invagination, by which the two tunics are formed.

A ready illustration of the process of invagination of the bulbous cord is made by taking in one hand a syringe with an egg-shaped bulb, the tube being attached to the small end. Hold the tube between the first and second fingers, the bulb lying in the hand ; with the end of the thumb of the same hand press the large end of the bulb until it comes in contact with the small end. In this perfect illustration of the method by which the two tunics are formed, your thumb represents the dentinal papilla filling the concave space in the enamel organ, and the tube represents the neck of the cord which still connects the enamel-organ to the epithelial layer of the mouth.

Sections from the jaw of an eight-centimeter pig show the process of invagination almost complete, the concave surface of the cup-shaped cord or enamel organ, as we will now style it, filled with the dentinal papilla or pulp. The interspace between the two tunics is now occupied by a stellate reticulum, which I have no hesitation in saying is formed from the small round cells that were originally inclosed by the walls of the cord. These walls, as we have seen, are composed of the cells of the Malpighian layer. The enamel organ is still connected to the epithelium of the mouth by the neck of the cord. Springing up from the base of the pulp is seen a connective-tissue envelope, which is to enclose the enamel organ in a complete sack, the exact office of which is not fully understood. I hold that it plays an important part in the development of the cement.

What we have said thus far simply refers to the development of the temporary teeth.

At about the fifth month in the human foetus and in the pig ten centimeters long, we find a bud springing off from the side of the cord of the temporary tooth. This is to form the cord for the permanent tooth, which is to take the place of the temporary

one. This budding arises from the lingual aspect of the neck of the cord and passes down on that side of the now fully-developed enamel organ of the temporary tooth. This description holds good for all except the cords of permanent molars. These arise from the distal face of anterior teeth, and pass down on the same side.

Turning our attention now to the pulp, we find lying on its outer surface a row of cells called odontoblasts. From these the dentine is developed by calcification around the fibrils, which are thrown out from their outer periphery; calcification beginning at a point farthest from the pulp and proceeding inward, the fibrillæ remaining as the contents of the dentinal tubuli. The basement membrane, the presence of which is doubted by most observers, would lie between the odontoblasts and the cylindrical epithelium, which composes the inner tunic of the enamel organ.

As regards the development of the enamel, there are many theories. Some hold that the enamel is a differentiation of a dentinal basis; but the fact that calcification of both dentine and enamel, beginning at the same line, progresses in opposite directions, makes that ground untenable. Others hold that the enamel results from the calcification of the enamel-cells themselves. From a casual examination this does appear to be so; but if such were the case, then at the beginning of calcification the enamel cells should correspond in length to the length of the developed enamel prisms, and the decrease in the length of the enamel cells should be commensurate with the increase in the thickness of the enamel, or the enamel-cells should extend on themselves as calcification progresses, which phenomenon has not been established. It is asserted that the multiplication of the ameloblasts in the direction of their length is from the cells of the stratum intermedium as rapidly as calcification occurs at their free ends; that is, the calcification of the cell-body at one end and the building up at the other is made a consequent necessity. It is admitted, however, that, before the formation of the enamel is completed, "the *epithelial* or *gelatinous* tissue undergoes atrophy." This atrophy of the stratum intermedium occurs at about the fifth month in the human foetus, when only a very thin layer of enamel is calcified.

Those who hold to the theory of the direct calcification of the enamel-cells must seek for a new supply of "*epithelial* and *gelatinous*" tissue to lengthen the cells for the calcification of

the remaining thickness of the enamel, which is by far the greater part. If the ameloblasts are directly calcified, it is the only place in normal development of tissue where calcification of cell-body does occur. In the development of bone the osteoblasts do not become calcified, but the lime-salts are deposited around the spherical osteoblasts in the form of spherules, increasing in thickness from within outward, and, thus approaching one another, they coalesce. The osteoblasts persist as the lacunæ; their connection with neighbouring lacunæ forming the canaliculi, and the capillary blood-vessels around which the osteoblasts are arranged become the Haversian canals.

In the calcification of dentine, as we have seen, the odontoblasts do not become directly calcified, but send out rod-shaped fibrils, around which tubular dentine is formed; so also in the enamel we have the prismatic ameloblasts superintending the deposit of prismatic enamel.

If a newly-formed layer of enamel which lies on the dentine in a thin plate be torn off from a thick section of tooth and mounted, the outer surface will be seen to be pitted,—that is, provided you have succeeded in getting the enamel in just the right stage of calcification. The periphery of the pits corresponds to that of the ameloblasts. The ameloblasts during the formation of enamel seem to be impregnated with lime-salts, and break with a clean fracture at almost any point—sometimes near the newly-formed enamel, and sometimes at a point just inside the nucleus.

C. S. Tomes noticed the fact of the probable impregnation at the end nearest the forming enamel, and cited it as proof of the actual conversion of the ameloblasts into enamel-prisms. The impregnation of both ends of the cells is accounted for in the fact that they are carrying lime-salts from the enamel organ to the forming enamel. The pits in the newly-formed enamel are the central portion of the prisms, from which the still uncalcified exudate has been drawn by the ameloblasts when they were separated from it.

This semi-calcified material, which adheres to the ameloblasts, gives the appearance of a fibril or prolongation of the cells themselves. These fibrils, which have been called Tomes's processes, I consider as thus being mechanically made, for they do not always appear, but depend upon a certain condition of the calcific material. They do not occur persistently, as do the fibrillæ of the odontoblasts. I have succeeded in demonstrating them in

sections of pigs' teeth, under favourable circumstances, where they showed very plainly indeed, being nearly or quite as long as the ameloblasts themselves, and several times longer than the enamel was thick. However, as a rule, the ameloblasts separate from the forming enamel so as to leave a comparatively smooth line or plate,—that is, provided the sections have been sufficiently thin, so as not to show a ragged edge from the overlapping of the cells themselves. I have never been able to demonstrate processes that would lead me to infer the least analogy between them and the fibrillæ of the odontoblasts. That the enamel organ exists in the commencement of the development of the teeth is now generally admitted. There are certain classes of teeth, however, that do not possess enamel, and in which, although there is an enamel organ developed, the stellate reticulum fails to appear. In all cases where there is to be a deposit of enamel we find a stratum intermedium fully developed, and my observation leads me to believe that the calcification of the enamel matrix is largely due to a calcific material stored in the meshes of the stellate cells of the stratum intermedium. If an osmic acid solution be injected underneath the mucous membrane of the mouth of a perfectly fresh eight or ten-centimeter foetal pig, and it then be immersed in a solution of equal parts of the same solution and alcohol to harden, the morphological changes in the cells of the enamel organ will be arrested. If we lift the mucous membrane from its bed after the tissue is sufficiently hardened, the enamel organs will adhere and bring up with them their papillæ. You thus isolate the enamel organ from all surrounding calcified tissue; imbed and make sections, and these sections will show that what appears to be the reticulum of the stellate cells is in reality a broad mesh, the reticular appearance, with large interspace between, resulting from the shrinkage of the cells in the process of hardening with Müller's fluid, chromic acid, etc.,—these latter failing to arrest the morphological changes. In the meshes of the stellate cells prepared by the osmic-acid method, which has stained the cells a very dark brown, are seen numerous minute granular bodies, which have a high refractive power. If a few drops of dilute nitric acid be put on the slide near the edge of the cover-glass and allowed to run under, these granular bodies will disappear, and at the same time large numbers of bubbles accumulate and force themselves out from under the cover-glass. In this experiment we have a positive demonstration of the pre-

sence of carbonate of lime in the meshes of the stellate cells of the fully-developed enamel-organ previous to the beginning of the process of calcification of the enamel. These granules of lime do not appear in sufficient quantity to result in completely calcified tissue, but are held in a state of suspension; but, as the meshes of the stellate reticulum shrink, the granules of lime are brought nearer together, and by approximation stiffen the tissue. The presence of a non-shrinkable material in the meshes of the stellate cells of the stratum intermedium accounts for the different results, as regards shrinkage, in the processes consequent upon preparation of tissues.

Previous to the beginning of development of the enamel we find little or no shrinkage of the enamel organ during the hardening and decalcifying processes, provided the hardening is accomplished first. It is only after the stellate cells have given up a portion of their lime-salts, either by forming enamel or by being decalcified before hardening, that any shrinkage occurs. The shrinkage in the first instance is localized in that portion nearest the forming enamel; in the latter it is general. The shrinkage on the part of the enamel organ, in any case, is more apparent than real; the space formed by the separation of the enamel from the ameloblasts being largely due to the greater shrinkage of the dental pulp, which draws the formed dentine and enamel down from the sides of the cone-shaped enamel organ. If the stratum intermedium is, as has been stated, very rich in albumen, and does not contain calcific material in large quantities, there would be a very great shrinkage in preparation, due to the rapid taking up of its water by the acids used in decalcifying, which is not the case previous to the commencement of the formation of the enamel. But after calcification has begun, and the stratum intermedium has given up a portion of its lime-salts, then more or less shrinkage is noticed; or if decalcification is accomplished by hydrochloric acid, which has no hardening property, and the tissue is afterwards hardened in alcohol, we notice the same phenomenon, which is due to the same cause, viz., the giving up of the lime-salts previous to the coagulation of the albumen in the substance of the tissue. Thus, I see in the stratum intermedium an essential agent in the process of the formation of the enamel, and not a mere occupier of the space to be taken by the formed enamel, as some would have us believe.

The stratum intermedium is the storehouse, so to speak, of the

calcific material from which the first-formed enamel is derived ; the width of the space so occupied bearing, as a rule, a proportionate thickness to that of the enamel. This is best illustrated by the development of the molars, where it is plainly shown. That there is a very great difference in form between the enamel organs of the centrals, cuspids, and molars, in the same mouth, and also that this difference exists among the several classes of teeth, none will dispute. I hold that the enamel organ is the matrix former. As the foetal femur is to the mature femur, so is the enamel organ to the fully-developed tooth. They are the matrices that govern the form of the fully-developed tissue, at least, in a general way—in each can be seen the type of the resulting product. The concave face of the enamel organ gives form to the future tooth in the Carnivora ; the dentine forming against the inner ends of the ameloblasts. Sometimes the fibrils of the odontoblasts penetrate between the ameloblasts, and we have as a result an interlacing of the dentinal tubuli and the enamel prisms. This interlacing of the fibrils of the odontoblasts with the ameloblasts militates against the theory of a limiting membrane existing between them. That this occurs before the process of calcification begins I have no doubt, although I have not been able to demonstrate it. The forcing of the soft fibrils of the odontoblasts between the calcified enamel prisms is impossible. I have a pathological section from a human incisor, taken from the superior maxilla of a man who, when he was four years of age, was kicked in the mouth by a horse and seriously injured. When his permanent incisors erupted they each had a furrow on their labial and lingual faces, showing faulty development ; into these furrows horns of dentine projected fully one-half the thickness of the enamel. The fissure in the enamel resulted from a displacement of the ameloblasts at the time of the accident. Into the fissure thus formed the fibrils of the odontoblasts projected, thus showing the tendency of the odontoblasts to send out their fibrils until they meet an obstruction. In normal development this obstruction is formed by the inner layer of the enamel organ.

The ameloblasts, after superintending the deposit of the enamel, become shortened and widened. This transformation gradually continues, until they are changed into a perfectly homogeneous membrane, which latter becomes hornified, and forms the cuticula dentis, or Nasmyth's membrane. After the disappearance of the enamel organ as such, the ameloblasts come in contact with the rich plexus of capillary vessels that surrounded

the enamel organ. The enamel organ cannot be a secreting organ, except in so far as it furnishes the lime-salts for the calcification of the first-formed layer of enamel. Neither can it furnish "the pabulum for the building up of the ameloblasts in the direction of their length," except in the very first stage of calcification. As regards the development of the dentine of the root of the tooth, it is formed, as is the dentine of the crown, by a secretion from the odontoblasts, calcified around the dentinal fibrils ; also a prolongation of the odontoblasts. Calcification, beginning at a point farthest from the pulp, progresses inward. At first the apical foramen is large, bounded by the thin layer of dentine, but as the dentine increases in thickness the foramen gradually narrows, until it presents the appearance seen in the fully-formed tooth, viz., a constriction of the pulp-canal.

The dentine and cement of the root are formed between the body of the odontoblasts and the connective-tissue envelope which surrounds the developing tooth. This envelope is lengthened with the pulp in the process of elongation of that organ previous to the formation of the root. If we examine the connective tissue envelope, we will find it richly supplied with blood-vessels, which form a complete net-work of capillaries. It is supposed that the white corpuscles escape through the walls of the capillary vessels and become changed into osteoblasts, which in some manner superintend the formation of cement. The development of cement is analogous to sub-periosteal formation of bone in long bones, and is, consequently, sub-pericemental. In the Herbivora cement is deposited over the entire tooth ; in the Carnivora the tooth erupts through the upper portion of the sack before the process of cement formation begins, and cement is deposited on the dentine of the root ; in the Rodentia, however, we find cement deposited on the lingual face of the tooth and enamel on the labial. Secondary dentine is calcified in the same manner as primary dentine. Exostosis of the roots of teeth is the analogue in structure of the first-formed cement. If the source of nutrition had not been cut off from the enamel organ by the eruption of the tooth, I have no doubt that caries of enamel would have been repaired in a manner similar to caries of bone. In conclusion, enamel, cement, and dentine are secreted by special organs, which persist after the formation of the different parts of the tooth, odontoblasts as odontoblasts, cement organ as pericementum, and enamel organ, modified by change in surroundings, as Nasmyth's membrane.—
Dental Cosmos.

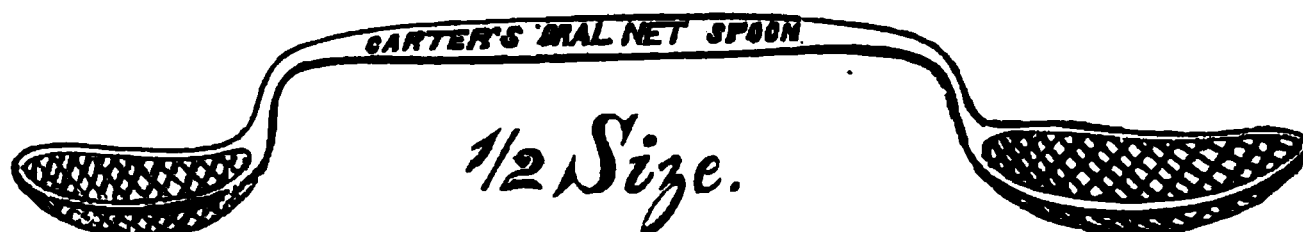
NEW INVENTIONS.

An "Oral Spoon" for Use during Extractions under Anæsthetics.

By T. S. CARTER, L.D.S.Eng., Dental Surgeon to the Leeds General Infirmary.

OWING to the increasing use of anæsthetics for dental purposes, a serious danger has arisen, viz., that of a tooth or stump escaping from the forceps and passing into the larynx when the patient is in a recumbent position and under the influence of an anæsthetic. The position favours its falling backwards, and the lessened sensibility of the glottis, added to the rush of the current of air during an inspiration, renders the patient particularly liable to the occurrence of an accident of this kind.

To obviate this danger I advise the use of an instrument, which I have had made by Messrs. C. Ash & Sons, Broad Street, London, and have named an "Oral Net Spoon."



It consists of a double ended spoon, shaped to the oral cavity, and having the bowls cut away and platinum gauze inserted so as not at all to interfere with respiration. One end, as shown in the illustration, is smaller than the other to suit different sizes of the mouth, and the handle is bent in order to adapt it to the angle of the mouth with the gag *in situ*. It may be held by the administrator or an attendant in such a position at the back of the mouth, as to completely guard the entrance to the pharynx and yet not impede the operation.

By the use of this instrument not only may an obvious danger be avoided, but a great source of anxiety is removed from the mind of the operator.

The following case in which I omitted to use this instrument shows how easily the accident to which I refer may happen. Fortunately in this instance the tooth was driven out by a forcible expiration, but it might easily have become impacted; as it was it caused the most alarming symptoms.

On November 6th last, H. L., æt. 20, a maidservant, presented herself at the Leeds Infirmary, suffering from enlarged cervical glands and neuralgic pains on either side of the face. I advised the removal of all stumps, upper and lower, and of a decayed bicuspid at the top, and while ether was being administered, I spoke to a student present of the danger to which I am calling attention. Noticing that two stumps slipped from my grasp when removing the lower, I adopted the extra precaution of having the patient's head thrown forwards by drawing her down on the couch before proceeding to remove the upper. Seizing the left second bicuspid with my forceps, the blades suddenly closed and the tooth shot with great velocity into the larynx. This was immediately followed by rigidity of chest and lividity, and all the signs of impending suffocation. I at once turned the patient face downwards and drew her over the side of the couch so that her head depended nearly to the ground. Shortly afterwards there was a sudden expiratory effort, and the tooth was audibly expelled into the dish, rapid recovery ensuing.

The tooth was a small one, and very much cone-shaped. I found that it could be repeatedly driven from the forceps by merely grasping the blades upon it.

OBITUARY NOTICE.

John Rigden Mummery.

THE announcement of the death of Mr. J. R. Mummery, L.D.S.Eng., will be received with deep regret by all our readers, whilst to very many of them the loss will be that of a valued personal friend.

The late Mr. Mummery was born at Dover, in 1809, and was, therefore, in his seventy-sixth year at the time of his death. His father, who was a man of literary tastes but of limited means, gave his son, who almost from his earliest years showed a great love for the acquisition of knowledge, a liberal education. Having formed the desire to enter the medical profession, Mr. Mummery came to London, and was apprenticed to a surgeon living at Bow, but his peculiarly sensitive temperament soon obliged him to relinquish this career, and he then took up the study and practice of dentistry. In 1843 he established himself in Dover as a dental surgeon, and during the fifteen years he remained there gained the high reputation which he afterwards maintained. In

1858, chiefly by the advice of the late Mr. Arnold Rogers, of Hanover Square, he removed to London, where his success soon proved the wisdom of the advice. He at once took a prominent part at the meetings of the Odontological Society, in the progress of which he continued to take an active interest for more than twenty years; he held the Presidentship of the Society in 1871. Amongst his numerous and valuable contributions to the *Transactions*, that which is most widely known is the paper on "The Relation which Dental Caries amongst Aboriginal Races holds to their Food and Social Conditions," which he read before the Society in 1869. Mr. Mummery was engaged in the investigation of this subject for about eight years, in the course of which time he personally examined nearly 3,000 skulls, preserved in museums and private collections in various parts of the country. He was also for many years a member of the Committee of Management of the Dental Hospital of London.

Failing health compelled him, in June, 1883, reluctantly to retire from practice. During his residence in Cavendish Place, one of his favourite recreations was the beautiful fernery he had there constructed, and after his retirement his garden took up much of his time and attention. Mr. Mummery was an accomplished botanist, and took great interest also in marine zoology. He was a Fellow of the Linnean and Royal Microscopical Societies, and numbered among his intimate friends many well-known men of science. He died on the 6th inst., after a comparatively short illness, the funeral taking place on Saturday last, at the picturesque old church at Hendon. Mr. Mummery leaves a widow to mourn his loss, one son, who has already proved himself a worthy successor in the practice of the profession, and three married daughters.

ANNOTATIONS.

THE Hon. Secretary of the Victoria Dental Hospital, Manchester, informs us, with reference to the handbill mentioned in last month's Annotations, that he has ascertained that no copies of it were distributed in the streets, with the sanction or knowledge of the Committee, or by anyone connected with the hospital. Copies were sent to ministers of religion of all denominations in the district, and a few were taken by some of the Governors for distribution among their workpeople.

WE publish elsewhere a letter from the Chairman of the Dental Committee, disclaiming all knowledge of the circular on the part of the staff of the hospital. We see no harm in the circular itself, and though someone, probably with the best intentions, committed an error of judgment in thus publicly distributing it, the offence was not a very heinous one, and quite enough has now been said on the subject.

WE are very pleased to hear of the continued prosperity of the local Dental Societies at Leeds and Bradford. The annual meeting of the latter Society was held on the 8th inst., when Mr. G. Kirk was elected president for the year, and Mr. A. Howarth, vice-president, with Messrs. Cocker, Barnby, and Robertshaw, as members of the committee. Mr. E. J. Ladmore is still the secretary. Afterwards, Mr. A. Alex. Matthews, the hon. treasurer, read a paper on "Our Position as a Profession," which was followed by a brisk discussion. We should be glad to see similar societies established in every large town.

THE medical profession in America is, with characteristic energy, already bestirring itself in preparation for the International Medical Congress, which is to take place at Washington, in 1887. A meeting was held at Washington, on November 29th, for the election of the principal officers, and to settle various preliminary arrangements. Dr. Austin Flint was elected president. Drs. A. Stillé, of Philadelphia; Henry Bowditch, of Boston; and R. P. Howard, of Montreal, vice-presidents; and Dr. J. S. Billings, secretary-general; all well-known names. An executive committee not less satisfactory was also formed.

AMONG the eighteen sections already decided upon, we find that Ophthalmology, Otology, Dermatology, and Laryngology, have each a place, but there is no mention of Diseases of the Teeth. We hear, however, that active efforts are being made to get a Section of Oral Surgery established, and, we believe, with fair chances of success.

COCAINE continues to excite as much interest as ever, and the reports of its effects to be not less satisfactory. Messrs. Hamilton Cartwright and Morton Smale testify in the medical journals to the good results obtained by the use of a 20 per cent. solution of

the hydrochlorate as an obtundent of sensitive dentine and especially for obviating the pain which is caused by the operation of destroying a living pulp.

Mr. BRUNTON, of Leeds, writes to us that having first tried a 10 per cent. solution of the hydrochlorate, and found that this acted very slowly, he reduced it to the form of citrate and evaporated this to a pasty consistence. On applying this to the surface of the cavity, previously well dried, the sensitiveness of the dentine was removed in one minute, and he was able to excavate without causing any pain. The paste can be easily applied on a small round-ended burnisher and there is no waste. He believes this will be found the best way of using the drug.

THOSE of our readers who take an interest in the progress of Biological Science, and we know there are many who do so, are, no doubt, aware of the efforts, now in a fair way of being successful, which have been made during the past year by the Cambridge Biological Association, to establish a well-appointed station for the study of marine zoology somewhere on the coast of the United Kingdom. But they are probably not aware that an important element towards this promised success, viz., the grant by the town of Plymouth of a suitable site, and a sum of one thousand pounds in addition, has been largely due to the influence of our distinguished ex-president, Mr. Spence Bate, F.R.S.

WE may mention, for the information of those who may not have met with an account of the project, that it consists in the establishment on the sea-coast, at the estimated cost of £10,000, of a laboratory, fitted up with tanks and other apparatus necessary for the study of marine biology, somewhat on the model of the one established by Dr. Dohrn, at Naples, at which much valuable work has already been done. Professor Huxley is the president of the association, which numbers amongst its members a number of well-known names, including, of course, all those eminent in the departments of zoology and botany. We may add that an annual subscription of one guinea qualifies for membership, and entitles the subscriber to a voice in the management of the association, to a copy of the reports which will be issued, and to special privileges in the use of the laboratory and its apparatus.

IN the course of a discussion on Teeth Swallowing, at a meeting of the Odontological Society of Pennsylvania, reported in the *Dental Cosmos* for October, Dr. F. M. Dixon related the following extraordinary case :—

Mr. J. S., a minister of one of our churches, came to me in 1868, to have a partial set of teeth—the four superior bicuspid, cuspids, and incisors—on a silver plate, the natural molars being *in situ*. The plate was made as usual, clasping the natural molars. This was worn for a year, at least, when a niece of the patient called at my office and stated that her uncle wished to see me, as he had had a fit, and they supposed had swallowed his teeth. I found two incisions, one on each side of the œsophagus, extending as far down as I could see, such as the edge of the plate would make, which satisfied me that the teeth had gone down. The patient was a large, muscular man. I took the impression of his mouth and made a second set. Now for the sequel. I was in my office just nine days after the second set was made, when the door opened and in walked my patient, holding in his hand the first set of teeth. Of course my first question was : “Where did you find them?” supposing that he had put them down somewhere and had just discovered them ; but he replied that he was washing his face a few minutes before, and while bending over the basin something moved in his throat, which produced nausea, and out dropped the teeth.

ANOTHER speaker stated that a patient having come to him in great alarm stating that she had just swallowed her plate, “he at once administered a brisk cathartic, as the result of which the plate was soon recovered by a natural process,” and no one seems to have pointed out to him the danger of this treatment. It is, we believe, a recognised rule of surgery, that in all cases where foreign bodies pass into the intestines, purgatives should not be resorted to. Patients are, however, not unfrequently met with, women more especially, whose bowels never or rarely act without medicine. In such cases the use of enemata might be necessary to bring the foreign body within reach of the anus, but under ordinary circumstances expectant treatment is by far the safest. Some very practical remarks on this subject, from the pen of Mr. F. Weiss, will be found in the *Journal* for June, 1883, p. 269.

IN the course of the discussion above referred to, Dr. Truman mentioned an article by Dr. Jul. Parreidt, published in the *Vierteljahrsschrift für Zahnheilkunde*, in which particulars are given of

sixty-two cases of teeth swallowing. Six of these proved fatal. Dr. Truman might also have mentioned the very valuable paper read before our own Odontological Society, by Mr. Felix Weiss in 1876, by which the attention of the profession was first forcibly directed to the frequency of these accidents.

SOME months ago we republished from an American source an article entitled "A Day's Practice," in which a modicum of instruction was combined with a good deal of humour. Its appearance, however, brought down upon us the wrath of sundry correspondents. We wonder what these gentlemen would say were we to reproduce in these pages an article which appears in a recent number of the *Ohio Journal of Dental Science*, headed "Can a Dentist be saved? Some considerations as to the Probabilities and Improbabilities of there being a Life of Happiness hereafter, reserved for Doctors of Dental Surgery," in which, after careful consideration of the question, the writer comes to the conclusion that all dentists are inevitably and eternally damned.

THE October number of the *Independent Fractitioner* also contains a highly original article, in which, under the title "A Visit to the Dentist," a graphic description is given of the sufferings of one Jones, "a pillar of the Hard-shell Baptist Church," much in the style of Mark Twain's well-known paper on "Curing a Cold." Evidently American readers have very different ideas from ours as to what is suited to the pages of a scientific journal. Their opinion of us is, no doubt, "respectable, but dull." But though, as the appearance of Dr. Jenkin's paper in this Journal testified, we see no objection to a little amusement occasionally, we cannot but think that articles of this sort, if at all frequently repeated, tend to lower to some extent the dignity of dental journalism.

THE occurrence of a death under nitrous oxide has lately caused a good deal of excitement in Paris. A retired magistrate, named Lejeune, went to a M. Duchesne, a well-known advertising dentist of Paris, to have a tooth extracted. Gas was administered, and the operation performed; it was then discovered that the patient was dead. From the fact that there was no appearance of hæmorrhage when the extraction took place, it is inferred that

death must have occurred just prior to the operation. An examination of the body was made by Dr. Brouardel, but, so far as we can learn, his report has not yet been made public. Judging, however, from the statements which appear in the French journals, death would seem to have been quite sudden, and to have been due to syncope, or failure of the heart's action, caused by the fear or the shock of the operation.

ONE result of this unfortunate occurrence has been, that a discussion has arisen in the French papers as to the right of dental practitioners to administer anæsthetics. It appears that as a matter of strict law only legally qualified practitioners of medicine are allowed to administer anæsthetics in France, but that this law has seldom been put in force against dental practitioners, even with reference to the use of chloroform and ether. The use of nitrous oxide is not expressly forbidden, and owing to the general impression that it was free from danger, no question has hitherto arisen as to its use. Whether any attempt will now be made to impose restrictions remains to be seen.

ANOTHER point referred to in this correspondence is one of which we have repeatedly pointed out the importance, viz., the necessity for the presence of a third party, whenever an anæsthetic is administered, to give assistance in case of accidents, and also as a witness. Cases illustrating this point frequently come under our notice in our exchanges, but we have referred to the subject so often that we hope it is unnecessary to say more.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

The Manchester Hand-bill.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I shall be obliged by your allowing me space in the next number of the Journal, for a few words of explanation respecting the hand-bill which you have commented on, and which, from what I have heard from other sources also, seems to have greatly disturbed the equanimity of your correspondent.

A small sub-committee of non-professionals, thinking that, as the Hospital was a new institution, it would be a good thing to make it more generally known to the class of persons for whose benefit it was started, issued the hand-bill in question without the knowledge of any of the Dental Staff.

As soon as one was shewn to me I consulted with several members of the staff, and at our suggestion, the issue of them was at once stopped by the Hon. Secretary. This was done some time prior to the publication of the number of the Journal in which your Annotation appears.

Although it is customary in the notices of all charitable institutions to mention the names of the officers, that from them, as you say, "the character of the institution may be judged of," still all the members of the staff whom I have consulted, agree that the bill in question was injudicious, and had the matter been brought before the Dental Committee I can safely say that it would never have been issued.

There are some persons who seem to think that the action of everyone else must be influenced by the same motives by which they are themselves governed. I fear your correspondent must belong to that class of individuals. Had the well-being of the Hospital been his desire, he might have learned the above particulars from the Secretary, or some other person connected with the institution, and he would have abstained from doing his best, as he has done, to bring discredit on the Dental Staff.

I am, Sir, yours, &c.,

HENRY CAMPION,

Chairman of the Dental Committee.

Manchester, January, 1885.

. The explanation given by Mr. Campion is precisely what we had expected. In a commercial centre like Manchester the advantages of advertising are so well known that it is difficult to get non-professional people to see that this means of publicity is not suitable under all circumstances. At the same time we are not aware that any attempt has been made (except inadvertently by the sub-committee referred to above) "to bring discredit on the dental staff." As for our correspondents, it appears to us that by giving the Dental Committee an opportunity of publicly disclaiming all responsibility for what occurred, they have done the staff a service rather than an injury.—ED.

Filling Materials.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Your correspondent, "Experientia Docet," has evidently no idea of the difficulty of what he proposes. To get a correct analysis of all the amalgams in the market would cost a very considerable

sum ; for any private person to make the assays would be useless, or worse than useless, as the results would be disputed by every maker. Very few samples of amalgams in the market can be depended on to come out twice alike, and only those who are in the habit of assaying can form an idea of the practical difficulty of making two ingots, or even two parts of the same ingot, alike in composition. Supposing this work to be done, we have again to contend with the different ways operators will use the same material, and the practical result is that a filling which is good in the hands of one operator may be worthless in the hands of another.

With regard to the "whole class of plastic fillings, other than amalgams," the difficulty is still greater. There are many white fillings in the market which are quite beyond the reach of either the chemist or the microscope, and in the absence of some special information, it is simply impossible to tell how they are made. In preparations of oxide of zinc alone, each maker has his own process, which he must either keep to himself or give up the idea of being repaid for his labours, for he would have a host of imitators at once ; perhaps no one has suffered so much as myself on this point. The powder of almost all white fillings in use at present is a more or less pure oxide of zinc, and yet its preparation in the densest form capable of being taken up quickly in combination, is a matter kept secret by all makers. Some fuse it into a mass with a trace of borax or glass, and grind the result, others prepare it by heating certain zinc salts to exact temperatures, others by selecting the heavier oxides from the flues of the subliming chambers, others by pressure ; but, given the chemical composition, an outsider would find it almost impossible to produce an exact copy of any given preparation, unless he had the details of the process explained to him in the most minute way. Secret processes are to myself an abomination, they class with patent medicines, quack doctors, and other similar evils, but there is really no help for them, they must exist, or there are plenty of unprincipled rogues ready to cheat the original investigator out of the result which has perhaps cost him years of labour and a little fortune to arrive at. I have worked amongst white fillings long enough to be able to tell almost in every case without hesitation the process used in their manufacture, but it might take three months hard work to produce an exact copy of any one, and until this exact copy is produced, it is not possible to say positively how any material has been produced. The same remarks as to the different manipulation of different users apply to these fillings as well as to amalgams, and the whole subject is so beset with difficulties, that it is not likely any committee will ever have the time, the money, and the patience to wade through it. I have given up years of steady systematic work to experimenting on plastic fillings, in fact, the greater part of the apparatus in my laboratory list was designed specially for this work, and the conclusion arrived at in my

own mind is that very little is known on the subject, and failing some purely accidental discovery, the working out of any great improvement will be the work of a life-time.

Warrington, January, 1885.

I am Sir, yours, &c.,

THOMAS FLETCHER.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The complaint of your correspondent who signs himself "Experientia Docet" with regard to the absence of any published records of the vast amount of valuable experience which is, or might be, available at our Dental Hospitals, appears to me to be a very valid and reasonable one. We are sadly in want of reliable information touching the comparative merits and demerits of the various stoppings in daily use. Nor is this the only subject of urgent practical importance about which we are comparatively ignorant. We know next to nothing of the relative value and powers of the numerous antiseptics we employ. Every practitioner has his own opinions on both these points. He uses certain materials,—it may be some old favourites, to the use of which he has become accustomed, or it may be the latest novelty introduced, according to his mental temperament,—and he swears by them. If you enquire into the grounds for his belief in their superiority, he will give you certain random recollections, more or less accurate, which he dignifies by the name of his "experience," but with such untrustworthy materials of course little solid progress is made.

Under these circumstances, we instinctively look to the Dental Hospitals for careful records of clinical experience. Each of these institutions possesses a competent staff to direct and watch the treatment, an abundant supply of patients presenting every variety of dental disorder, whilst at most of them there is also an assiduous body of students ready and eager to take notes; a combination, in fact, of every element necessary for the production of valuable records upon these vexed questions of stoppings and drugs. But alas no records appear ever to be made, or if made are never published for the benefit of the profession. We fear, indeed, that these opportunities are for the most part utterly wasted, and all for the want of a little system. What is wanted is a regulation case-book, and a strict rule, to be rigorously enforced, compelling every student using a stopping or filling to record the particulars according to some uniform plan. Some such suggestion as this has, I think, already been made in your pages, but I have not heard that it has ever been acted upon.

I am, Sir, yours, &c.,

A LOOKER-ON.

ANSWERS TO CORRESPONDENTS, &c.

"HONORIS CAUSA," MANCHESTER : As the matter has been satisfactorily explained, there is no need to publish your letter.

MR. GEORGE MAITLAND, EDINBURGH : A copy of the address asked for has been sent to the address given in your letter.

MESSRS. W. & J. JAMIESON inform us, with reference to the notice of their preparations which appeared in the last number of this Journal, that they do not recommend washing their Eclipse amalgam. If any confirmation were needed of the correctness of the opinions we expressed with regard to this preparation, it might be afforded by the fact that the S. S. White Company has secured the right of sale in the United States, a safe guarantee of the worth of the article.

CORRIGENDA : On page vii. of Index to last volume, 4th line from top for "31" put 311 ; on page viii., 15th line from bottom for "265, 527," put 265, 327 ; and on page xi., last line, for "316" put 163.

COMMUNICATIONS HAVE BEEN RECEIVED FROM :—

Messrs. T. S. Carter, Leeds ; W. & J. Jamieson, London ; T. I. Lloyd, Liverpool ; "*Honoris Causa*," E. M. Tod, Brighton ; J. S. Turner, London ; Dr. J. Cunningham, Cambridge ; Thomas Fletcher, Warrington ; Dr. W. C. Barrett, Buffalo, N.Y. ; George Maitland, Edinburgh ; Oakley Coles, London ; "A Looker-on" ; W. H. Coffin, London ; Dr. Arkovy, Buda-pesth ; The Secretary of the Odontological Society of Great Britain ; Henry Blandy, Nottingham ; H. B. Mason, Exeter ; The Secretary of the Odonto-chirurgical Society, Edinburgh ; Dr. W. H. Waite, Liverpool ; Dr. Walker, London ; George Brunton, Leeds ; J. R. Brownlie, Glasgow ; A. S. Underwood, London ; H. Champion, Manchester ; Storer Bennett, London ; F. Huxley, Birmingham ; A. J. Woodhouse, London ; J. Dennant, Brighton ; E. J. Ladmore, Bradford, &c.

BOOKS AND PAPERS RECEIVED :—

Lancet, Medical Times, British Medical Journal, Medical Press, London Medical Record, Dental Record, British Journal of Dental Science, Birmingham Medical Review ; Independent Practitioner, Ohio State Journal of Dental Science, Dental Cosmos, Archives of Dentistry, Dental Register ; Revue Generale d'Ophthalmologie, L'Odontologie, Revue Odontologique de France, Progrès Dentaire, Revue Odontologique de Bruxelles ; Centralblatt für Zahnheilkunde, Monatsschrift des Vereins deutscher Zahnkünstler, Deutsche Monatschrift für Zahnheilkunde, Oesterrisch-ungarische Vierteljahrschrift für Zahnheilkunde, &c.

TO CORRESPONDENTS.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &CO.

HOSPITALS.	DENTAL SURGEONS'	ASSIST. DENTAL SURGEONS.	DAY AND HOUR OF ATTENDANCE.	ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewbank ...	Mr. Lyons ...	Tuesday and Friday, 9 a.m. ...	Mr. Mills.
Charing Cross ...	Mr. Fairbank ...	... ..	Monday, Wednesday & Friday, 9 a.m.	..
St. George's ...	Mr. Winterbottom ...	... ..	Tuesday, 9 a.m. ...	..
Guy's ...	Mr. Henry Moon ...	... ..	Tuesday and Thursday, 12.30 noon ...	..
King's College ...	Mr. S. H. Cartwright ...	... ..	Tuesday and Friday, 10 a.m. ...	..
The London ...	Mr. Ashley Barrett ...	... ..	Tuesday, 9 a.m. ...	..
St. Mary's ...	Mr. Howard Hayward ...	... ..	Wednesday and Saturday, 9.30 a.m. ...	..
Middlesex ...	Mr. Bennett ...	... ..	—	..
St. Thomas's ...	Mr. Ranger ...	Mr. C. Rogers ...	Tuesday, ...	..
University College ...	Mr. Hutchinson ...	Mr. Chas. Truman ...	Wednesday, 9.30 a.m. ...	..
Westminster ...	Dr. Walker ...	... ..	Wednesday and Saturday, 9.15 a.m. ...	..
London Dental ...	Mr. David Hepburn ...	Mr. Smale ...	Monday, 9 a.m. ...	Mr. Bailey.
" "	Mr. R. H. Woodhouse ...	Mr. Lawrence Read ...	Tuesday, 9 a.m. ...	Mr. Bird.
" "	Mr. Gregson ...	Mr. Arthur S. Underwood ...	Wednesday, 9 a.m. ...	Mr. Mills.
" "	Mr. Hutchinson ...	Mr. Claude Rogers ...	Thursday, 9 a.m. ...	Mr. Braine.
" "	Mr. Henry Moon ...	Mr. George Parkinson ...	Friday, 9 a.m. ...	Mr. Bird.
" "	Mr. F. Canton ...	Mr. Storer Bennett ...	Saturday, 9 a.m. ...	Mr. Bailey.
National Dental ...	Mr. Henri Weiss ...	Mr. Truman ...	Monday, 9 a.m. ...	Mr. Glassington.
" "	Mr. Alfred Smith ...	Mr. Willoughby Weiss ...	Tuesday, 9 a.m. ...	Mr. Tyrrell.
" "	Mr. G. J. Williams ...	Mr. Giles Bradshaw ...	Wednesday, 9 a.m. ...	Mr. Hewitt.
" "	Mr. A. F. Canton ...	Mr. Marcus Davis ...	Thursday, 9 a.m. ...	Dr. Winslow.
" "	Mr. T. Gaddes ...	Mr. H. G. Read ...	Friday, 9 a.m. ...	Mr. Tyrrell.
" "	Mr. Harry Rose ...	Mr. G. D. Curnock ...	Saturday, 9 a.m. ...	Dr. Winslow.
" "	...	Mr. W. R. Humby ...	...	...

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, January 16th, at 5.30 p.m.; Committee of Management, January 19th, at 5 p.m.; Medical Committee, January 16th, 5 p.m.

Monday, February 2nd, at 7 p.m.; General Meeting, at 8 p.m.
Publishing Committee, January 29th, at 5.30 p.m.

Members are reminded that their Subscriptions for the current year are now due, and should be remitted to the Treasurer, at 40, Leicester Square.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 2.

FEBRUARY 16, 1885.

VOL. VI.

Our Political Horizon.

IN the first number for this year we devoted some space to the consideration of the field of action open to those who are anxious to advance our knowledge of the science and surgery of our profession. We would now in like manner, devote a small part of our present issue to a survey of the political horizon of our Association,—that horizon which we are ever approaching but which we never seem to reach,—and reading the future in the light of the past, we may fairly consider the look-out a hopeful one. The Association has steadily continued to overcome obstacles, out-live opponents, or—what is still more gratifying—enrol them on the list of friends. The opposition which misapprehension once combined against us is scarcely worthy of remembrance; many of those who misunderstood us have been con-

vinced that we are worthy of their support, and for the rest we neither know nor care what has become of them—to put the case scientifically, our opponents have either atrophied or become absorbed. Prosecutions have been carried through, the Benevolent Fund has been started. All this has been accomplished in the teeth of much opposition and indifference, accomplished, moreover, by the happy genius, the untiring energy, and the cheerful self-devotion of a comparatively small number of men. When, therefore, we ask what is there for the profession to do in the sphere of politics, the answer seems to rush to our lips—there are still a good many hundreds of names that are absent from the list of members. The pioneers of the movement may well feel proud of the position they have won, but each member ought to make it one of the duties of 1885 to enrol one new name on our list, and the result would be a reward to those who have worked so hard for others:

Need we remind our readers that Time does not spare these pioneers of our movement—their ranks are thinned, the heads of the survivors are sprinkled with silver here and there; where are their successors to come from? Not from the generation of apathy and indifference that cannot bestir itself to the extent of an annual subscription. The outlook from a political point of view is cheering—success will be followed by greater success—but the numbers of those who reap the advantages gained for them by the Association, as compared with the numbers of those who can afford to spare a guinea a year to support it, form a contrast that—however instructive to the student of human nature, or amusing to the cynic—is not quite a satisfactory spectacle to those who would fain see the ungrudging toil of the promoters of the Association rewarded while they are with us to see it. The danger of indifference

was, at the commencement of our history, pointed out by Mr. Tomes as one of the greatest dangers we had to fear, and although we have no reason to be other than satisfied with the progress which we have made, yet we know and feel that the danger still exists. "Easy come, easy go," is a trite but true saying which we, as a profession, should lay to heart.

The efforts of a few gentlemen in the provinces, combined with some active-minded London practitioners, have secured for us a recognised professional position, but even now, while the grass is yet green, the memory of those efforts is becoming dim and distant. We are liable in forgetfulness to overlook the fact that possession may become as treacherous as memory, and we may only truly recognise the value of our privileges when we find that they have been filched from us because we have been too indolent and too short-sighted to defend them. To those who look on it may appear that an Association such as ours can live on its initial force. It may seem to them to have sprung up without effort from any particular individual, and to go on without administrative care. The prosecutions already engaged in by the Association, and others which must assuredly follow, show that wisely directed efforts are necessary to retain what has been won for us, and that gradually but surely we must seek the interpretation of our Act in the Law Courts of the country. We believe that the Dentists Act, as it stands, is sufficient for all educational purposes, and also for the protection of the public, when the public care to protect themselves; but if it should prove in some respects faulty, how can we expect to procure any improvement in its provisions, if we cannot, as a body of educated men, show a strong and united front in approaching our legislators on such business?

It is the commencement of a new year, and a fitting

time for the British Dental Association to appeal to those who stand doubting to throw in their lot with us. If our numbers were doubled this year, we should feel the support much stronger than if the suggestions and advice of outsiders were to be rendered fourfold. It is a strange fact that a great many people seem to take a sufficient interest in our doings to write continually to suggest this or the other thing that we *ought* to do, yet cannot work it up to the pitch of subscribing to help us to do those things. We again suggest to all such that what *they ought to do* is simple and easy, namely, to become members of the Association and pay their subscriptions regularly.

We hope soon to see a Metropolitan Branch—the sooner the better. Moreover, it is high time that Dublin had its Branch, and the same may be said of the south-coast. There is, therefore, much to be done, and we believe there are the men at hand to do it. So we may be permitted to feel sanguine that 1885 will be the best year we have yet chronicled for our Association.

An Important Precedent.

THE recent appointment of a dentist to the North Surrey District Schools at Anerley, must be looked upon as a decided step in the direction of a recognition of the fact, that proper attention to the teeth is an important factor in the general health of a community. The Managers having advertised for applications for the appointment of dentist to the schools under their superintendence,—the applicants to be qualified and to give attendance on one morning each week, the Board supplying instruments and materials and giving a salary of £60 a year,—no less than thirty candidates came forward, and from these Mr. H. J. Moxon, L.D.S.I., was elected. Though the schools are under the supervision of the Local Government Board, the whole credit of initiating this step is due to the Managers of this particular institution, who were urged to it by the recommendation of their medical officer, Mr. H. J. Prangley.

Apart from the advantage which will be derived by the children, who will now get an amount of attention which was scarcely possible under the old regime, this appointment is of great significance as a sign of a more widely spread appreciation of the benefits to be derived from the dentist's art. A few years ago such an appointment would have been most improbable, and a resolution to make it would at once have been protested against as a piece of useless extravagance. Now, however, it may, without any exaggeration, be taken as a sign of the times, especially in connection with the recent attempt to secure for the out-patients of the general hospitals, a larger share of the benefits of conservative dentistry than has hitherto been found practicable. Many of our readers are aware that the dental staff of St. Bartholomew's Hospital has been largely augmented, something like a pledge as to the kind of service they were prepared to give having been exacted from the candidates by Sir Sydney Waterlow, the active Treasurer of the institution, who will be sure to see that his ideal of a dental department shall be attained, unless indeed it should prove impracticable, as we fear may be the case, owing to the vast amount of material to be dealt with. But, whatever may be the fate of this movement, we hail it as evidence of increasing public appreciation of the importance of conservative dental surgery.

Appointments to the care of limited numbers, such as are comprised in even a very large school, are not hampered by a dulling sense of the impossibility of dealing satisfactorily with the mass of cases which present themselves, but afford the opportunity of giving such care and carrying out such continuous observations as shall benefit both practitioner and patients.

On all grounds, therefore, the Managers of the Anerley Schools deserve alike the thanks and congratulations of the dental profession ; and we trust that the example they have set will before long stimulate others, having the charge of similar institutions, to take a like course.

Meeting of the Representative Board.

THERE will be a meeting of the Board at 40, Leicester Square, on Saturday, the 28th inst., at 3 p.m.

ASSOCIATION INTELLIGENCE.

The Midland Branch.

THE annual meeting of this Branch will take place on Friday, April 17th, at the Nottingham University. A large and light room has been secured for the demonstrations and for the display of objects of interest and instruments from the depôts. Electric lamps will be fitted up in front of each chair and about the room to compensate for any defects in daylight, and electro-motive power will be provided for the dental engines, by Professor Simpson, of the University. Other interesting and probably useful electric contrivances will also be shown. The University with its many attractive features, such as technical schools for machinery, chemical and physical laboratories, natural history museum, &c., will be open for inspection. Dr. Marshall, hon. surgeon to the Children's Hospital, has promised a paper on the Nutrition of Children, with especial references to the growth of bone and teeth. Other papers and promises of demonstrations are requested, and also specimens of interest. Further arrangements of an attractive civic and social character are in progress, and will be announced as soon as complete. Dr. John Smith, the President of the Association, Sir Edwin Saunders, and C. S. Tomes, Esq., M.A., have kindly signified their intention of being present (circumstances permitting). Gentlemen wishing to take part in the meeting, or desiring to be present, are invited to communicate at once either with the local secretary, D. Stuart Hepburn, Esq., 9, Wellington Circus, Nottingham, or with the hon. secretary of the Branch, so that a complete programme may appear in the March issue of the Journal.

W. H. WAITE, *Hon. Sec.*,

10, Oxford Street, Liverpool.

Central Branch.

THE first meeting of this Branch was held at the Dental Hospital, Newhall Street, Birmingham, on the 15th ult., under the presidency of Mr. CHARLES SIMS.

A meeting of the Council was first held, at which Messrs. E. J. Gregory, of Cheltenham, and A. Horton, of West Bromwich, were elected members of the Branch, and Drs. Sawyer and Simon and Messrs. Furneaux Jordan, J. W. Moore, A. Hawkins, and M.

Miller, all of Birmingham, together with M. C. A. Batten, of Kidderminster, and G. A. Phillips, of Walsall, were elected associates. The date of the next ordinary meeting was fixed for Thursday, March 26th.

Amongst those present at the general meeting were Messrs. Chas. Sims, F. W. Richards, Breward Neale, F. J. Thorman, F. E. Huxley, F. R. Batchelor, Bennett May, A. Clarke, F. R. Howard, W. Palethorpe, Clifford Batten, P. Naden, W. Naden, W. T. Elliott, &c.

The PRESIDENT (Mr. Chas. Sims) opened the proceedings with a short address, in which he pointed out what an important part was taken by the Branches in advancing the objects of the Association, and the benefit they conferred upon their own neighbourhood. The dental practitioners of Birmingham and its vicinity had long felt the want of meetings for friendly intercourse such as had been found of such great advantage in other parts, and it might be supposed that there ought to be little difficulty in establishing a Branch in that town. Birmingham was most centrally situated, and all that was needed was that a fair proportion of the large number of dental practitioners practising there and in the surrounding towns should give their support. But for some time Mr. Huxley and himself had found considerable difficulty in getting the requisite number of gentlemen to join. However, their efforts were at last successful, and on September 20th last, at a meeting held in that room, the Branch was established, rules passed, and officers elected.

Mr. Sims then went on to speak of the objects of the Association and the necessity for unity in the profession. The profession had lately made rapid strides, and great changes had taken place within a few years. The passing of the Dentists Act in 1878 was a turning-point in its history, but they were only now beginning to appreciate the benefits which the Act had conferred. It ensured that the profession should be recruited with well-educated men, and it was to these younger men he looked to carry on the work which had been so well begun. After referring to the political and social work of the Association, Mr. Sims concluded with a strong appeal for the Benevolent Fund, remarking that though he had no fear as to its ultimate success, it could not at present be said to be creditable to the dental profession.

Mr. BREWARD NEALE then shewed a patient for whom he had successfully filled up the space left by the extraction of a fractured

superior central, at the same time depressing the other three incisors and the canines, and lengthening the remaining central, which, with the one extracted, had been fractured by a fall so as nearly to expose the pulp. He also shewed models of a second and similar case, in which two prominent centrals were broken, and remained very unsightly from their shortness.

An interesting discussion took place on the possibility of permanently lengthening the teeth in such a case by drawing them down.

A patient with commencing erosion, and the models of another case, were presented by Mr. RICHARDS, who, in describing the cases, said that amongst the injuries the teeth suffer from, two kinds of surface wearing or denudation were met with which were very similar in appearance and character, even if they were not one and the same thing, but which were generally considered to be brought about by different causes. One of these lesions clearly arose from friction—wear, and was termed abrasion, the other condition being called erosion, and was supposed to be due to the solvent action of certain of the fluids of the mouth. These two lesions were constantly confused by the old writers with another condition, surface decay, or, as he would prefer to call it, decay by denudation, this being an entirely different condition from either abrasion or erosion, and one which if once seen could never be mistaken for them.

The model he showed was a very typical example of this kind of decay, in which all the teeth in the head were affected with it, the whole of the enamel appearing to have been removed, and the denuded dentine being black, rough, and uneven. These results were due, no doubt, to an inherent weakness in the tooth-structure, especially the enamel. The patient, a young man of about 26, was a strumous subject. The teeth had enormous fangs, several being twisted at right angles; they were removed, however, with very little trouble, and little or no pain, the alveoli being very spongy and soft.

The appearance presented by eroded surfaces was very different from the above. The dentine when denuded of enamel was more or less sensitive, often unbearably so to the touch; it had a smooth, hard, polished surface, often assuming a yellowish colour, which became more pronounced as the pulp chamber was approached. Translucency was also more or less a characteristic.

These lesions might appear upon any part of the crowns of the

teeth, and were sometimes seen as a horizontal groove on the buccal or labial surface of the neck of the tooth—rarely on the lingual. The loss of tissue might be superficial or deep, and in the case of horizontal grooving, a tooth might, in time, be completely cut through. In these cases where the necks of the teeth were grooved, the gums generally receded, and were often slightly swollen and puckered, as if irritated by some abnormal fluid. The cause of these lesions was sometimes very apparent, at others very obscure and uncertain. There might be a predisposition in an inherent softness of structure of the tissues, only requiring some exciting cause to bring on the condition, as the friction obtaining in an edge to edge bite. Also the custom of eating gritty food might result in the loss of the masticating surfaces. The labial aspect might suffer through injudicious use of hard tooth-brushes, or improper tooth powders, such as vegetable charcoal, which might contain silicate of lime and potash, or even the friction of artificial teeth may be the cause.

When the lesions occurred upon the lingual surface, it was difficult to account for it, except by the softening action of the mouth-fluids. The polish was most likely due to friction only.

In the treatment of these conditions we should be careful, and avoid all friction—any sharp projections of enamel might be smoothed and rounded off. If a cavity exists, it should be filled. The sensitiveness of the dentine might be allayed for a time by the application of either camphorated chloroform, chloride of lime, nitrate of silver (objectionable on account of its staining the tooth), nitric acid, or tannic acid; the two last being, perhaps, the most effective.

There were two problems yet to be solved in regard to erosion.

1. How to prevent its occurrence?
2. How to stop its course when it has once begun?

The answer will depend upon arriving in the first place at some satisfactory conclusion as to its true cause.

In discussing this case Mr. ELLIOTT said he found filling the erosion cavities the only satisfactory treatment, but owing to its extreme painfulness, few patients would be got to endure this.

Mr. NEALE found he could get over the difficulty by administering chloroform a few whiffs at the time, not sufficient to produce complete insensibility, during the excavation.

Mr. SIMS said he found nitric acid the most satisfactory agent to allay this sensitiveness.

Mr. HUXLEY had met with cases in which filling could not be entertained, and he had sometimes found relief gained by the frequent application of tannin and Eau de Cologne.

Mr. SIMS showed a model, and an extracted incisor belonging to the same case, in which all the teeth were shortened so much on their masticating surfaces as to almost expose the pulps ; they also presented remarkably large polished facets on the labial aspect.

Mr. ELLIOTT read a paper on "The Treatment of Pulpless Teeth," which gave rise to a long discussion, which was ultimately adjourned till the next meeting, on Thursday, March 26th.

Mr. Huxley's paper on "Constitutional Treatment in Caries" was also postponed.

ORIGINAL COMMUNICATIONS.

Educational Centres.*

BY JOSEPH WALKER, M.D., M.R.C.S., L.D.S.ENG.

Mr. PRESIDENT,—The Educational systems of Germany, France, Switzerland, and America, have excited considerable interest in Great Britain. The recent report of the Royal Technical Commission has once more brought home to us the fact that the population of Germany is more highly educated than that of our own country. In united Germany we find one matriculated student in 2,600 of its population. In England the proportion is one matriculated student in 5,800 of its population. The system of education in Germany differs essentially from that adopted in England—

1st. State education is universal.

2nd. Every school of whatever type is inspected by Government inspectors.

3rd. Teachers of every grade are obliged to pass examinations, and to possess Government certificates.

The result of this system is shown in the "Tables of Matthew Arnold on Higher Schools in Germany," in 1865 (the latest information obtainable). From these it appears that, to take one State as an example, Prussia proper possessed in 1863, 255 Higher Schools, with 3,349 teachers, and 66,135 students,—viz., 45,403 classical, and 20,732 non-classical. There were, in addition, 84 Public Preparatory Schools with a staff of 188 teachers, and

* Read at the Annual General Meeting of the Association at Edinburgh August 29th, 1884.

containing 8,027 students. The average attendance in the Higher and Preparatory Schools together was therefore about 74,000 students; the average rate of fees being £3 per annum; whilst the money voted by the State, Communes, and Municipalities, amounted in 1863, to £387,000.

The private schools of Prussia and other states of Germany are conducted by certificated teachers and inspected by Government Inspectors, but have no supplemental funds. The success of these schools depends entirely upon the quarterly Government reports. If these reports are unsatisfactory, the school has no status and ceases to exist.

The foregoing numbers cannot therefore be looked upon as the limit of public education.

The following are a few of the larger foundation schools: The Frederick William Gymnasium has 2,200 students, its annual expenditure amounts to 65,000 thalers, and 10 per cent. of the scholars are admitted free. At the Greyfriars School there are 550 students, its annual expenditure is 202,700 thalers, and 10 per cent. of the scholars are free. The Joachimstalsche Gymnasium has 404 students, 10 per cent. of whom are free, its annual expenditure is 30,000 thalers. The Schulpforta educates 205 students at an expenditure of 45,000 thalers, and the Frederick William Gymnasium, at Cologne, 1,000 students at an expenditure of 6,900 thalers.

The nature of the education provided by the German Constitution for its millions of population can find no place in this short paper. It is my object to show what advantages in the way of higher education we possess in Great Britain.

All the public higher educational foundations in Great Britain are the outcome of the munificence of past ages. The various grades of these scholastic foundations are due either to the energy of the Corporate Committees, or to the high attainments of a past Head Master, lifting an ordinary Grammar School into the position of a first grade and well-known Public School.

The Public Schools of this country (nine in number), the Chartered Schools, Grammar Schools, City Schools (as those of London, Bedford, Bristol, &c.), and Endowed Schools, of every grade, are all governed by distinct and separate combinations of Trustees, Governors, and Committee Men, and the Head Master is always found to be one of the most active members of these Managing Committees.

The Government of Great Britain has no position of authority in guidance as to educational work, or as to how the funds belonging to each foundation shall be dispensed ; and the Universities are only invited by the Constitutional Authority of each Foundation to take part in the higher examination of its scholars. In fact the strong and healthy position of these notable Public Schools is only maintained by the friction and stimulus of competition, together with the help of Scholarships and Exhibitions granted for competition by the fifteen Universities of Great Britain.

The Head Masters of the various Public, Grammar, City, and Endowed Schools, have almost supreme control in their own Foundations. The internal discipline as well as the selection and permanent appointment of the teaching staff is in their hands, and it is now an acknowledged fact that only the most gifted and highly educated University Wranglers, First Class men, and Prize-men are engaged by the Head Masters of our most noted Public Schools. The Professors and Teachers in our Public, Grammar, City, and Endowed Schools are University men with degrees of well-known classical value, hence the education which is given is generally of a distinct and valuable character.

That the teaching power of our Public and Grammar Schools is beyond question, is shewn by the results of the Government Examinations for entrance into the Civil Service, the Indian Service, the Army, Navy, Church, and the legal and medical professions, and many of the most highly educated classes are quite content that our present method of supervision of our higher education shall remain as it is.

On the other hand, another section is clamouring for the appointment of a Minister of Education with a suitable staff, to organize and control every phase of education, high and low, and that every teacher should be able to produce a guarantee that he not only possesses the knowledge he professes to teach, but also possesses the power to impart that knowledge in the most efficient manner. But no special educational degrees or diplomas are granted by the Universities or Chartered Bodies, with one exception, viz. : "the College of Preceptors." We have in Great Britain, no examining body to prove the fitness and power to teach, of those who possess classical, mathematical, and special knowledge.

It must be understood that I am now speaking only of the

higher Schools and Colleges of Great Britain, which offer distinct and valuable education. Educational seminaries and commercial colleges are institutions purely of a private character, which the Universities ignore altogether so far as gifts of Exhibitions and Sizarships are concerned, and only of late years have admitted their students to the Middle Class Oxford and Cambridge examinations ; these are, however, open to all classes, whether educated at private schools or Government Aid Schools. The principal stimulus of these private schools, therefore, is success, educational and monetary.

The freedom and liberty enjoyed by all British subjects in the selection of the character of education, is manifested by the foregoing paragraphs, and the greater the freedom the greater the responsibility of every parent, guardian, or trustee—equally so of every Member of our Association.

The selection of the character of the education of our children must depend on the following considerations:—

- 1st. The physical condition and mental calibre of the child.
- 2nd. The future avocation.
- 3rd. The means of the parent or trustee.
- 4th. Whether the education is to extend to manhood, or is it to be the preliminary step to commercial life.
- 5th. Whether the education is to lead up to high diplomatic, Indian or Home Civil Service, professional, educational, or commercial life.

Public, Grammar, Endowed, and City Schools possess histories. They have traditions and precedents that give a tone to the character of the pupil, and the traditions attached to certain schools have a tendency to develop a taste for Diplomacy, Church, Law, Army, Navy, Professional or Commercial life in the student. This is so well known that the selection of a school must harmonise with the nature of the future avocation.

The older Foundations, each and all attach primary importance to classics and mathematics ; the younger Foundations are divided into an upper school for classics and mathematics, a lower school, preparatory to upper school, and a modern school for mathematics, languages, science, history, &c., to which are attached work-rooms for the teaching of engineering, joinery, modelling, laboratory for chemistry, museums for natural history, mineralogy, botany, comparative anatomy, and elementary physiology.

Each school has adopted a register for future students, application for registration to be made to the Dean, Bursar, or Secre-

tary, from whom copies of test examination papers for admission can be obtained. These test examinations vary in degree as to standard and number of subjects. These registers are often so overcharged with names that it is necessary to register three or four years prior to admission, which is according to date of registration, and registration on the books of more than one school is sometimes advisable.

Conclusions as to the comparative value of the numerous schools may be estimated by the particulars contained in the Register annexed to this paper,* in which are given in tabular form, the date of Foundation, the name of the Head Master, the number of Assistant Masters, and the Exhibitions, Scholarships and Prizes, and reference to Honor List of each School.

Eton, under its new Head Master, Dr. Warre, through its Committee, is now proposing to establish Preparatory School Houses for the reception of boys at the age of nine or ten, where the education shall lead up to the examination for admission to the school itself. Winchester has established, by the means of its old masters, many preliminary schools. The modern foundations, Clifton, Cheltenham, Marlborough, and others, have houses called "out-houses," established within the precincts of the older houses, for similar education.

North, South, East and West of England and Scotland, schools are now established for preliminary education, whose doors are closed to pupils at the age of twelve and thirteen.

A good preliminary education should guarantee admittance into one of the schools noted in my Register, and may lead up to the attainment of an Exhibition or Scholarship at a Public or Grammar School.

The Dental Surgeon of the future, and the sons of our present practitioners, will stand in the highest need of a public school education in contra-distinction to the education obtained at an essentially private school.

The majority of our Dental Surgeons are now so well established, with competent means, that the question has only to be considered and determined upon to be made practicable. It is, however, clear that all our sons cannot hope to obtain the aid of a Scholarship or Exhibition towards this education, nor is it, perhaps, always desirable.

* This Appendix is too long for publication in this Journal, but will be found in the volume of "Transactions," which every member will receive with this number.

To stimulate a bright, medium intellect to competition for scholarships, would be the very means of depressing moderate ability, while the stimulus of Public School competition, as a rule, increases mental power and develops sterling character.

When money is a consideration, the next best thing to be done is to look for a school where the fees are not too high, while sufficiently fair to ensure proper instruction and discipline from the Schoolmaster.

As an example of what may be had in the way of a liberal education at a very moderate charge, let us take the case of "Merchant Taylors," one of the older Foundation Schools of London. There is an upper and a lower school, promotion from the latter to the former taking place twice a year, according to individual proficiency. An entrance fee of £3 has first to be paid, and thereafter £12 12s. per annum in the Lower, and £15 15s. per annum for a boy in the Upper School. Of course the above fees are for tuition only, so that if the boy's parents were living in the London suburbs, the charges at Merchant Taylors would stand somewhat as follows:—

Second class travelling for one year, say	...	£10	0	0	
Dinner four days a week for one year					
(exclusive of holidays)	...	...	7	0	0
School tuition	...	...	15	15	0
			<hr/>		
			£32	15	0

I give particulars of Merchant Taylors', but this is only one of the many which time will not allow me to enumerate; accounts of others will be found in the Register before referred to.

Education obtained at a Public School with residence, or at a Grammar School, with home influence, should lead up to the possibility of the attainment of a Scholarship, Exhibition, or Sizarship at one of the Universities.

I have taken the Calendar of the Cambridge University (see appendix) to show the advantages accruing to real students, formerly mostly confined to those who had made the Church, Law, Army or Politics the aim of their ambition, but which are now open to the aspiration of all worthy, earnest students—Dental Students not excepted.

I have spoken of two subjects, Physics and Mechanics. Both these subjects should have a large and comprehensive course of study during the school-days. Then, when the Matriculation is

taken, or the Examination in Arts, the future dental student should commence his technical, mechanical dental training by serving his articles to a sound and educated dentist, and at the age of nineteen or twenty he would be ready to avail himself of the triple training provided.

If we are wise in our day and generation do not let us confound two principles—education and charity. Dental Hospitals may, and should be established in every town and well supported by the humane and the professional; and the manipulation of the well-schooled student should be perfected, and the most difficult of our operations facilitated, by constant practice at our hospitals. But, looking at the question from the purely educational point of view, and with regard to the training of our future dentists, I would suggest that it would be best to consolidate our Dental Schools and to concentrate our professional teaching power to a few large centres.

Dental educational centres should be established at our large University centres, and attached to or become part of our Medical Schools at London, Oxford, Cambridge, Manchester, Liverpool, Leeds, Edinburgh, Glasgow, and Dublin. The training of the Public School student could then be supplemented by sound University, Medical, and Dental teaching.

The prizes of University life are more numerous than most of us imagine, and though, as I have said, they have been largely monopolized by two or three professions, they are now open to us and to our sons. Thus there are scholarships with a money value amounting to £180,000, besides many others with no money quotation.

My hearers may imagine I am an enthusiast. I have only to point to our worthy President—the President of the College of Surgeons of Edinburgh, to our honoured President of the Representative Board, Mr. John Tomes, F.R.S., and to Mr. Charles Tomes, a graduate of Oxford and F.R.S.

Fortunately for us others may be added, who are Fellows of Colleges, M.A.'s of Oxford, M.A.'s of Cambridge. These are our hopeful leaders of the future; these have enjoyed privileges the outcome of the foresight of liberal sires.

Let us so arrange our future educational systems that others may follow by the score. Then John Tomes and James Smith Turner will be well recompensed for their long years of labour and self-sacrifice.

Abstract of an Introductory Address

*Delivered at the School of Surgery of the Royal College of Surgeons
in Ireland, October 27th, 1884,*

By R. THEODORE STACK, M.D.Dub., F.R.C.S.I., D.M.D.Harvard,
Professor of Dentistry in the College.

DR. STACK began by remarking upon the past history and present advantages of the Dublin School of Medicine, which, he said, was specially noted for its practical clinical teaching. He then went on to give an outline of the ordinary medical curriculum, pointing out the importance of the preliminary subjects, such as anatomy, physiology, and chemistry, and the necessity of a knowledge of these in order to properly understand those which followed. He quoted the opinions he had expressed at the General Meeting at Edinburgh, with reference to the great advantage which would be derived by the general or dental surgeon from an early training in the use of tools and mechanical appliances, and impressed upon his hearers the importance of acquiring this familiarity. Taking the other subjects, materia medica, pathology, &c., in turn, he showed their mutual interdependence and intimate relation to practical medicine and surgery.

Having traced the medical curriculum down to the end of the third year, Dr. Stack said he would direct the attention of his audience more particularly to the remaining portion of the dental course, which for the first three years was identical with the medical, since this was a subject with which he believed many of them were not familiar. During his fourth year, the medical student, besides improving his knowledge of general medicine and surgery, would enter upon the study of various special subjects, such as midwifery, operative surgery, diseases of the eye, &c., a minute knowledge of which was not expected from the dentist.

For these subjects there had been substituted subjects different, yet equally difficult, and of much more value to the dentist. From him was expected a knowledge of dental metallurgy, dental anatomy, dental surgery and pathology, and dental mechanics.

Metallurgy, the science which teaches us the properties of the pure metals, and the methods of extracting them from their salts and ores, had indeed many practical applications in dentistry, and the dental student, already possessed of a considerable knowledge of chemistry from his winter course of lectures and

his practical work in the chemical laboratory, would approach its study with a mind peculiarly adapted for understanding its principles. The contraction and expansion of metals, their hardness, their toughness, their points of fusion, their malleability, their ductility ; their different behaviours in different states, such as the rolled state, the hammered state, the precipitated state ; their powers of resistance to the influence of acids and of noxious gases, were among the investigations proper to this science. Thus in the workshop, when we wish to duplicate in metal a model already taken in plaster of Paris, we are taught by this science what metal or combination of metals will effect our purpose best. If we use a metal that will contract or expand much, our duplicate is worthless ; if we use one too soft or too brittle our labour is lost. Then again, the point of fusion, and the deterioration from overheating are most important practical considerations. And in the operating room this science gives us even more assistance, it has taught us all those valuable properties of pure gold, of which in recent times the dentist can make such varied and beautiful application. Gold in the hammered state makes a most perfect filling in simple thimble-shaped cavities ; but it is utterly useless as a filling material when one wall of the cavity has broken down. Now metallurgy has taught us that pure gold in the rolled state, or in the state of pure precipitation from a solution, acquires wondrous properties of cohesion. This property of cohesion enables the operator to restore the contour of a defective tooth in the following way : he first at the bottom of the cavity drills a minute hole, called a retaining point, into which he can fix a small piece of gold. Having this little piece of gold anchored, the operator makes use of the cohesive property of gold to complete the filling ; piece by piece he can add the small fragments of gold, sticking one to the other, and by minute tapping and gentle hammering, produce a homogeneous solid mass of gold of any shape and size he may desire. Thus has this method of using gold enabled the operator to make most durable operations in cavities and defects of teeth, which were entirely unsuited for treatment by the older method ; and still more recently there has been advocated an entirely new method, that of Herbst, by which he maintains that cohesive gold can be used with marvellous rapidity. Again, in the formation of amalgams this science is calculated to render us equal service ; indeed, in this most useful class of fillings there remains much to

be accomplished, and we need more accurate attention and careful experiment to be directed to the investigation of the proper laws of their combination by the scientific metallurgist.

A minute study of dental anatomy and physiology, and an investigation of the varieties and forms of the teeth in some of the lower animals, offer to the dental student a study at once liberal and practically useful. Here I will refer to these diagrams executed by Professor Frazer, to whom I cannot make sufficient acknowledgement for the trouble he has taken. I have on several occasions had the opportunity also of seeing most beautiful sections of the teeth and their surroundings made in the physiological laboratory of this school, and I trust the other medical schools will see their way to devoting a considerable part of the course of practical physiology to the particular study of microscopic dental anatomy, which has been initiated here by Professor Frazer. But to return to the diagrams. I shall have very little trouble in shewing you the practical application of several of the microscopic points that are here illustrated. In the first place, you observe here the skin of the mouth, the oral epithelium with its deep vital layer and its superficial shedding layer; you observe that from the deep layer of the epithelium there is being sent down a blunt root into the substance of the developing jaw; this root becomes presently the enamel organ. And now the practical application; here we have learned that the tooth has had its origin from the skin of the mouth, we have seen it with our eyes, for in imagination I see you looking through Professor Frazer's microscope at the section. We are then prepared to understand how it is that the exanthemata, characterized by skin eruptions, occurring in infancy or early childhood at the time when the teeth are developing, affect in a specific way the teeth, the descendants of the skin. Well, here you observe in the next diagram this, the blunt root is spreading out and becoming the enamel organ of the milk tooth, while a papilla is growing up into it. And here you see, even at this early stage, a budding off from the upper part of the original root; this bud is the enamel organ of the permanent tooth. One practical application of this is that since the permanent teeth are already developing in earliest infancy, it will be at this period that we should administer food of proper quality for the production of good tooth substance.

And again, let me refer to this diagram representing the adult tooth. I have not time to dwell on all the points, but briefly, you

see the enamel, dentine, crista petrosa, and the periosteum or periodontium. Let us take the dentine, which when seen under the microscope, is perhaps the most striking of the dental tissues; you observe these minute tubes, that in the root of the tooth they run in a direction straight from the central canal to the periodontium. Now the practical application. Suppose that a patient presents himself with the crown of the tooth broken off, and that you wish to preserve the root, how can you effect this? Simply by filling or lining the canal. Caries is known to penetrate the tooth chiefly in the direction of these minute tubes; now if the canal of the tooth be left open, caries will readily penetrate through those ends of the tubes which open into the central canal, and dissolve and disintegrate the root; but if the canal be occluded, or its walls lined, the root will remain sound for many years. Now I have frequently seen artificial plates whose support in the mouth depended on the following arrangement:—a short rod of gold or other metal was soldered to the upper surface of the plate, and this rod was designed to penetrate into the pulp canal of a root, and thus support the plate. The constant result of this system is that very soon the root becomes disintegrated and entirely inefficient for affording support; but a root lined will, for the reason I have pointed out, remain an efficient support for many years. How important from the mechanical point of view then is the knowledge of this minute histological fact!

The study of dental surgery and the performance of all the beautiful remedial operations in conservative dentistry, must ever be regarded as the highest pursuit of the dentist, while the introduction of large plates bearing artificial teeth must be considered the opprobrium of dentistry, though there is not the slightest probability that the necessity for these ingenious appliances will disappear for many generations. It should be our aim to study more minutely the causes of degeneration of the teeth, the pathology of decay, their powers of repair. The carefully recorded and tabulated observations of many workers alone will help us to solve these intricate problems. The dentist hitherto has made few such records, but the dentist of the future, trained side by side with the medical student, will, it is to be hoped, imbibe that spirit of accurate record and observation which has done so much to advance our knowledge of disease.

Hitherto, indeed, dentistry has had little to attract a man of liberal education, and a very few years will carry us back to the

time when the whole speciality was untouched either from its physiological, its anatomical, its surgical, or its medical aspect—when the only remedy for an aching tooth was its extraction. Thus, till recently, the opinion prevailed that if decay penetrated to the pulp chamber it was useless to attempt to save the tooth, so that the only teeth in which the operation of filling was undertaken or contemplated were those in which the decay had penetrated to but a slight depth. This operation could of course be as easily performed, by even an unpractised hand, as the cutting through the skin to open a superficial abscess, but when disease has penetrated to the pulp chamber it is hopeless to attempt to save the tooth unless we call in the aid of general surgical knowledge. Moreover, our dealings with the pulp must be guided by an intelligent knowledge of its potentialities for repair. I must take you here a little way into comparative anatomy. The rodents, that is, rats, rabbits, and animals of that class, have teeth for gnawing which are constantly worn down by those in the upper and under jaws grinding against each other; unless, then, there were some provision for supplying the loss caused by constant attrition, these teeth, so essential to the life of the animal, would rapidly be worn away altogether—hence we find in this class of animals that the pulp retains, and daily exercises, the function of adding new dentine to the inside of the pulp chamber. Here, gentlemen, you see the skeleton of a rabbit, in which the teeth in the upper jaw have for some cause or other failed to meet those in the under jaw, the result is that the teeth have continued to grow and curve to an enormous degree. We have, then, this analogy to guide us, and we are prompted to try to arouse this function in the pulp of the human tooth. And here, again, we must exercise that judgment which we have learned in our medical studies, for there are dyscrasiæ and disorders of the system in which it would be hopeless to expect this repair, and in which our treatment of the pulp must be entirely different.

Mr. Abraham, our Pathologist at the Dental Hospital, and the Curator of the Museum of the College of Surgeons, has established the important fact that, provided the pulp of the human tooth gets a certain stimulus, it is quite capable, not only of producing within its substance nodules of dentine, but of depositing such a layer upon the surface of the pulp chamber, and that it can accomplish these changes in a very few months. These observations are of deep importance and are a great credit to the

Dublin School of Dentistry. Armed, then, with this knowledge of the reparative potentialities of the pulp, how do we approach the treatment of this tooth in which caries has penetrated to the pulp chamber, and which was consigned by the older dentists to the forceps? We contemplate either the antiseptic destruction of the pulp, which will be our treatment in those disorders and dyscrasiæ to which I have alluded, or, in the case of the healthy and vigorous, we determine to arouse the reparative function of the pulp. In the latter case we cap over with some non-irritating material the region of the exposed pulp, and fill the tooth over this; nor is it sufficient to use alone a non-irritating material, the cap must also have anti-putrefactive qualities, for the exposed pulp, however carefully washed and cleansed, will continue to exude for a little time matter from its surface, which is prone to putrefy, and rapidly, if putrefaction commences between the filling and the pulp, will the latter be reduced to a gangrenous mass. In the other case it will be advisable to proceed to extirpate the pulp, having first destroyed its vitality by the use of some therapeutic agent. There are those who use arsenious acid; there are those who consider this agent should never be used for this purpose—the opinions of neither will convince the profession unless we have some closer reference by the hostile sides to pathological knowledge. Till within the last five or six years, few observations of real value had been made in this direction, nor are any such to be found in our English textbooks to this day, but a German observer has recently started on the right track, by examining the pulps of teeth which have been treated with arsenic, and noting the varying number of hours it takes for this potent agent to create a superficial, a moderate, or a profound change in the pulp. You may observe in these diagrams of pulps treated with arsenious acid, the incipient, progressive and final changes corresponding to the shorter or longer period, during which the drug was left in contact with the pulp.

The danger of using arsenic without proper precautions, without limiting the time during which it is left in contact with the pulp, is that its effect may penetrate to a still greater depth, may traverse the foramen at the end of the tooth, and produce serious results in the jawbone, terminating often in necrosis very much akin to that produced by phosphorus, its chemical cousin. This doubt about arsenic has incited dentists to devise other means, hot air, iodoform, cocaine, the last of which promises results in

the hands of dentists as favourable as those already obtained from its use by the ophthalmic surgeon.

Well, gentlemen, I have been trying to get this tooth filled, and here I am like Tristram Shandy, who nearly completed the first volume of his history in describing his intrauterine life. Well, granted that we have now by our therapeutical knowledge and pathological observations determined how to deprive this pulp of life with safety to its surroundings, what is our next step? To remove from the cavity of the pulp chamber and root canals the unconscious or dead body of the nerve, and to fill up the root canals with some antiseptic material. Observe, that in both these cases, that in which we try to preserve the pulp, and that in which we are compelled to extirpate it, we must draw on our knowledge of antiseptic surgery. Nor is it too great a tribute to pay to the author of antiseptic surgery to say that his teaching has entirely revolutionised the whole art of operative dentistry.

Having then ensured by your skill that you are not building on a perilous foundation, you are taught at the Dental Hospital all known methods of filling the body of the cavity, whether it be with gold, with amalgam, with the various cements or plastic stoppings; you are taught the use of retaining screws, of matrices, methods of inserting crowns without the use of plates, and in fine, have demonstrated to you all those strenuous efforts by which operative dentistry teaches us to avoid what should be the last resource of the dentist, namely, the use of large artificial plates. The Americans lead the van in these matters, and I have here a model which will demonstrate some of the methods by which they endeavour to avoid the aid of plate work. Observe how many teeth are absent on this model, yet see, without the aid of any plate extending over the palate, without the aid of clasps hugging round the teeth in perilous or fatal embrace, how beautifully each gap has been restored, how carefully each root has been treated, and made to discharge its useful function as a support. It is very plain that not one of these operations could be carried out, unless we were able through the teaching of Lister to prepare antiseptically and securely fill the roots of the teeth.

Now, gentlemen, I do not categorically say that these methods can be applied in all cases, but I consider that at a good dental school all known methods should be demonstrated to the students, and I wish it to be understood that my colleagues at the Dental Hospital are ready and willing to do this, so that you may your-

selves have the opportunity of forming a judgment of the merits of these different operations from seeing them in practice.

But with all our efforts we must, for a long time to come, still resort to mechanical dentistry, and as our method of teaching this differs from that in the other dental schools of Great Britain. I shall ask you to consider it for a moment. Our method is that which has been adopted in all the better dental schools in America, and is known as the public laboratory system. By this method the student is brought at once in contact with his patient, and is made with his own hands to go through the different stages of taking the impression, of striking up the plate and taking the bite, and of carrying out all the details of mechanical construction. Lastly, he is made with his own hands to insert the plate, and to carry out those final points of minute adjustment which are so essential to the comfort of the wearer. Now it is beyond all question, that the first and last of these details are those which it is most essential for the dentist to carry out, viz., to take a good impression and bite and to make a comfortable adjustment. Yet these are the very points in which, in a private apprenticeship, he receives little or no instruction. I have known dental students who had been in a private apprenticeship for several years who had not the slightest idea of doing these properly. Not that I undervalue the details of construction. For the dentist's own comfort I would advise him to thoroughly know this part of his work. If he has to employ a mechanical assistant he ought to be able to direct him ; and if necessary to take the piece of work from him, show him his mistakes, and himself sit down to the bench and complete it. Now in gaining a knowledge of these constructive details we give facilities in this school unknown in any other in the United Kingdom. No other school indeed possesses a laboratory in connection with it, and mark ! with us the laboratory is for the student, not as is too often the case in a private apprenticeship the student for the laboratory. The plant and fittings are for his use, every effort is made to teach him and to advance him in the knowledge of practical work. Thus under the auspices of the Royal College of Surgeons, Dublin is still well to the front in the matter of educational facilities for the dental student.

HOSPITAL REPORTS AND CASES IN PRACTICE.

Two Cases of Epulis.

Reported by Mr. R. C. DRABBLE, L.D.S.I., Sheffield.

At the usual monthly meeting of the Sheffield Association of Licentiates in Dental Surgery, held on 11th December last, Mr. R. C. DRABBLE read notes of two cases of Epulis. In the first case, that of a female aged about twenty-one years, it presented itself, on the labial aspect of the lower right lateral and canine teeth, forcing the canine inwards and quite away from its normal position; upon examination no cavity could be found in either of the teeth. The treatment adopted was first to excise the growth, and then scrape the process well. In a week the patient returned, when the displaced canine was found to have nearly regained its position; the part was again scraped and nitrate of silver freely applied. After the lapse of another week the patient was again seen, when the tooth was found to have returned to its normal position, and no sign of recurrence of the growth could be seen.

In the second case, a model of the growth *in situ* was shown, and the patient was present. The tumour extended from about the centre of the right upper canine to the mesial surface of the second bicuspid, which appeared to have been pressed backwards, nearly concealing the first bicuspid the crown of which was almost destroyed by caries. There was considerable space between the canine and first bicuspid, the growth apparently springing from between these teeth. It was large, of mottled aspect, much inflamed, and giving forth a discharge resembling pus; the teeth were covered with tartar. The patient stated the swelling was noticed two years before he applied for treatment. Mr. Drabble said that in treating this case he acted very much on the same lines as in the one previously narrated, and after the lapse of three months there was no return of the tumour. He mentioned that at the time of excision the bleeding was profuse, but was arrested by tannic acid; also that there was recurrent hæmorrhage, which was overcome by the application of nitrate of silver.

Mr. FRANK HARRISON thought it seemed doubtful whether it was a case of simple hypertrophy or epulis.

Mr. PIKE said he considered the growth a simple hypertrophy, caused by the ragged edge of the first bicuspid, and did not know that he himself would have interfered with the tumour, but would

have insisted upon the removal of the lateral and first bicuspid teeth as the first step in the treatment.

Mr. DRABBLE, in reply, said he did not feel in any way condemned, there were such difficulties present that he did not consider himself justified in removing the teeth at first, but intended to do so at a later time under influence of nitrous oxide.

* * * The only noteworthy point in the above report seems to lie in the discussion. Cases of epulis are tolerably common, and these do not appear to have presented any special features of interest, either as regards the disease or its treatment. But we cannot quite understand the sharp distinction drawn by the speakers between epulis and simple hypertrophy. It is true that the term epulis is often loosely applied to nearly all tumours of the gum, and thus we hear "malignant epulis" spoken of. But in the great majority of cases the tumour so designated is nothing more than a localised hypertrophy of gum tissue. If there is an excessive development of gum tissue extending over the whole, or a considerable portion of the jaw, we call it hypertrophy of the gum; if it exists only in the neighbourhood of one or two teeth we call it an epulis. We have not the advantage of writing with the model before us, but so far as we can gather from the description given, the case was one of simple hypertrophy *and* epulis.—ED.

REVIEWS AND NOTICES OF BOOKS.

DENTAL SURGERY FOR GENERAL PRACTITIONERS AND STUDENTS OF MEDICINE, by ASHLEY W. BARRETT, M.B., Lond., M.R.C.S., L.D.S., Dental Surgeon to the London Hospital. H. K. Lewis, London, 1885 : pp. 80, fcap. 8vo.

IN the preface to this little book, which is one of "Lewis' Practical Series," the author hopes it "may prove useful to the busy medical practitioner, too much occupied to study larger and more exhaustive works on Dental Surgery." This aim, it may be at once admitted, is fairly well fulfilled. The book is full of practical suggestions and cautions, and its perusal is calculated to recall to the mind of the general practitioner many half-forgotten facts and details relating to the simpler operations of dental surgery. For students we consider the book less suitable, though it may be useful to supplement a practical clinical course. Of pathology there is but little, and that little not always the most recent. Thus

we are told with reference to carious dentine, that the microscope "reveals upon its surface and within its tissue a copious development of the cryptogam *Leptothryx Buccalis*, the sporules of which penetrate into and between the dentinal tubules." This was the view of Leber and Rottenstein, but our knowledge has been considerably advanced by more recent investigators. The style is occasionally involved and lacking in clearness, but not more so than is often to be found in first editions. Believing the book will serve a useful purpose, we wish it success, and hope the author will have an opportunity of removing a few blemishes in future editions.

CAULK'S DENTAL ANNUAL, devoted to the Collection and Dissemination of Statistics relating to the Business and Practice of Dentistry. L. D. Caulk, Camden, Delaware, U.S.A., 1885.

This publication contains a large amount of information relating to dental education and the dental profession in the United States. We find, for instance, a list of all the dental societies in the States, with the names and addresses of their executive officers, a list of all the dental periodicals published in the States, another of the dental colleges, twenty-one in number, with the names and addresses of the deans, a synopsis of the various State laws relating to the practice of dentistry, together with a good deal of interesting and amusing information of a more miscellaneous character. In one particular, we believe the editor is mistaken, or at least premature. Referring to the International Medical Congress to be held at Washington next year, he says there is to be a Section for Diseases of the Teeth, (which is not yet actually settled, though we believe it is scarcely in doubt) and also that all who hold the degrees of D.D.S., D.M.D., M.D.S., &c., will be eligible as members. Now as the arrangements are being carried out under the auspices of the American Medical Association, and as this body recognises none but medical degrees, a special grace will be required to allow of the admission of those holding only dental diplomas, and we understand that such a proposal will not improbably meet with some, perhaps a good deal of opposition. Hence it is scarcely safe to take the point as gained.

ZAHNÄRZTLICHEN ALMANACH, 1885 : An alphabetical list of the names, &c., of all Dentists practising in the German Empire and in Austro-Hungary. Edited by **ALDOLF PETERMANN, D.D.S.,** Frankfort-on-Main.

This very useful little annual has now reached its sixth year of publication. It has no resemblance to an Almanack, as we understand the word, but is really a very neat and handy little directory giving the names, addresses, and qualifications of the 733 qualified dentists now practising in the German and Austrian Empires. It contains two very well executed portraits, engraved on steel, of Dr. Wilhelm Süersen, of cleft-palate fame, and Dr. Wilhelm Herbst, whose name is just now familiar to dental practitioners throughout the world. It contains also a "local list," giving the chief towns with their population and the names of the dentists settled in each, some interesting statistics, a legal summary, and a variety of other useful information. From it we learn that there are 570 practising dentists in Germany, 18 of these being ladies; whilst in Austro-Hungary there are 163, of whom only two are ladies. Of the 570 only 472 have qualifications obtained at home, of the remaining 98, 85 possess American degrees, including 17 of the ladies. There are professors of dentistry at the universities of Berlin, Breslau, Buda-pest, Graz, Halle, Leipsic, Kiel, Cracow, and Vienna. We should be very glad to see a similar work published in England.

HELPS TO HEALTH : The Habitation, the Nursery, the School-room, and the Person, by **HENRY C. BURDETT.** Kegan Paul, Trench & Co., London, 1885 : pp. 250.

IN spite of the fact that a couple of pages of this handbook are devoted to the care of the teeth, the book as a whole cannot be held to come within the limits of our department of literature. We can, however, just mention that it is one of the best and most readable popular works of its class which we have yet met with, containing a large amount of useful practical information. It has evidently been compiled with great care, and the statements in it to which exception can be taken are very few.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odonto-Chirurgical Society of Scotland.

THE usual monthly meeting of this Society was held on January 8th, at the rooms, 30, Chambers Street, Edinburgh, ANDREW WILSON, Esq., L.D.S.Edin., President, in the chair.

The minutes of the previous meeting having been read and approved, the PRESIDENT called upon Mr. JOHN STIRLING for his paper upon the "Treatment and Filling of the Nerve Canals in Teeth," of which the following is an abstract:—

We are gradually progressing in the proper treatment of aching teeth. It is not very many years since the filling of roots was an operation we only heard mentioned, and never saw accomplished, and when it was the almost universal practice to fill teeth over a devitalised nerve, without any attempt to remove it. Co-existent with that was the now old-fashioned operation of rhizodontrophy. We have not yet arrived at perfection in the treatment of roots, but we have improved very much upon that, as, I hope, will be shown in the discussion of the subject here to-night.

In the first place, I will consider the treatment of the teeth preparatory to filling their roots, and I will take the simplest and easiest of cases first—that is, devitalising and extirpating the nerves of the teeth.

In destroying a tooth pulp, when arsenic is employed, it should not be used as we get it from the chemist's shop, but should be triturated in a small mortar, moistened with water, from half-an-hour to an hour, and I prefer to use it with nothing but carbolic acid added to it. I usually leave the extirpating of the pulp till about four weeks after applying arsenic. The dressing is removed after twenty-four or forty-eight hours, and the pulp chamber well opened into, cutting out at the same time the bulbous portion of the pulp, after which it may safely, or rather advantageously, be left alone for a month or more.

If any attempt be made to remove the nerve on the same day, or within a few days, after removing the dressing, it must in most cases cause considerable pain to the patient. At the end of four weeks the pulp should be cleared out of the canals. I use these instruments as nerve extractors. You will see they are round, and slightly barbed or roughened, with a sharp sculptor.

If, when clearing out the nerve, there is found to be still some vitality at the far end of the canals, drenching it well with carbolic

and careful manipulation with the nerve extractor, will get it painlessly. Where there has been little or no putrefaction of pulp, the canals require no preparation or treatment further than extirpation of the pulp. I very rarely open a canal with a bur or drill to the apex of the root. The canals may be filled immediately after removing the nerve.

I have not had any experience in treating a devitalised nerve with tannic acid, and then extracting it entire; but if that can be done painlessly, it is to be commended. Such a tooth could be removed in two or three days from the time its treatment was commenced. In upper front teeth, after devitalising the nerve, when put in a temporary stopping, I often, at the end of a month, remove that nerve entire, with one draw of the instrument, without any pain to the patient. But if there has been the slightest gangrene of the nerve, a temporary stopping is inadmissible; the cavity must be left open.

Where I find inflammation of a nerve, caused perhaps by a filling being too near to it, if it be at all severe, or especially if it is extended to the periosteum, I devitalise and eradicate the nerve in the manner which I have just described. I have no faith in capping such a nerve. An accidental exposure, of course, I may cap, but any tooth pulp that has once been very decidedly inflamed, and has once given severe toothache, will never return to its normal state; cap and stop with non-conducting material, as will, the pulp will always remain in a chronic state of inflammation. The capping may stop ordinary toothache, but the tooth will be always sensitive to thermal changes, causing occasional discomfort to the patient, which may go on from a few weeks to a month or longer; finally that passes away, the tooth remains quiet for a short time, and the patient can take cold water freely without hurting it. But it is only preparing for more serious trouble, which comes soon or late, but generally soon, and the stopping has to be removed, and the capping ignominiously turned out.

There are cases where the nerve seems to shrivel and dry up, leaving comparatively clean canals, and which give little or no further trouble. But these cases are exceptional, and usually depend not on the state of the tooth, but of the patient, whose teeth and pulps generally all follow the same course.

But we have a very different state of things where we find a tooth, in the canals of which putrefaction has been going on for a long time, causing periodontitis or alveolar abscess. The most

difficult part of the work of stopping that tooth will be in cleaning the nerve canals, and bringing the periodontum into a healthy condition. In a case of that kind, where there is, say, acute periostitis, caused by unclean nerve canals, we all know the symptoms presented, and can almost tell it at a glance. The first thing to do, is to open the pulp cavity well up. If the tooth is very painful to the touch of the finger, we may not be able to do this effectually. But if we are to give relief from toothache, it must be opened enough to allow us to pass one of these instruments a short distance into, at least, one of the canals; and we can generally manage that with a sharp excavator, a gentle touch, and a good light. When, however, we can cut freely without hurting, we are able to do a little cleaning to the canals, but it must be done carefully, and they must be wiped out, not washed out. A syringe and water at this time should not be used, because to employ it with effect, it must be used with force, and to force water into the canals, would probably drive through their apical foramina something septic, and that would rather increase the inflammation that we are trying to subdue.

I usually put a little bicarbonate of soda into the cavity of the tooth, moistened with one drop of water, pass an instrument into the canal, and work it a few times up and down and against its sides, and then let the patient rinse the mouth. If that fail to give relief, try carbolic acid, with a very little iodoform in it, pushed gently into the canals. If part of the nerve is still alive and highly inflamed, iodoform with carbolic acid, and not arsenic, should be used. Failing to give any immediate relief, the patient may be directed to hold cold water in the mouth five or six times during the day for a quarter of an hour each time. A saline purgative is also a good thing in such a case.

Let us suppose, now, that the disease, before we saw it, had gone a stage farther, and suppuration had taken place. If it were a lower molar tooth, with the nerve canals difficult of access, and especially if the patient had reached the shady side of middle age, I would recommend its extraction. But if it were a young tooth, with the canals wide, and easy of access, or if it were any other tooth than a lower molar, I would then, after having opened up the pulp cavity, promote suppuration instead of trying to prevent or subdue it; for which I recommend hot fomentations—a cloth squeezed out of hot water, and held to the face opposite the tooth—or tincture of aconite to the gum; but that should be

used with discrimination, as to *when* to use it, or its application may be worse than useless. In the treatment of periostitis, it should be used only when suppuration is probable or inevitable. The primary stage of periostitis seems to me to require treatment of a very opposite kind.

To a tooth in this state, as also before suppuration has taken place, we should do no more at the first sitting than endeavour to relieve the pain. The proper cleaning of the canals should not be attempted for a day or two after, or for three or four days if there is any swelling of the face and difficulty in opening the mouth freely, and the patient should be directed to pick the food out of the cavity in the tooth after each meal. I have never found much good from a leech to the gum at any stage of inflammation. Lancing, when it is necessary, I have found do more good, and it is more easily and quickly done. Apply chloroform to the gum (or the new anæsthetic, cocaine), and it can be lanced freely with but little pain to the patient.

The extraction of teeth, in order to fill the canals, and then replanting them, I cannot discuss. I never practised it, and I never agreed with it in theory.

We will now consider the cleaning and preparation for filling of the nerve canals, which should be done as soon as the tooth is quite free from pain. The cavity of decay should be so shaped that the canals be made easy of access. If the decay has not made it so, then it must be shaped with chisel, file, and burring engine, and it is often necessary to cut away a great part of the crown of the tooth.

In large postero-approximal cavities of second bicuspid, and all the molars, the cavity should be opened up to nearly the middle of the crown, making it resemble a compound one. Most of this would be done with the chisel, and finished with the file, putting it between the teeth and holding it while filing at an obtuse angle. That is, making something like a broad wedged-shaped opening between the teeth. With small postero-approximal cavities, it is often better to open through the crown of the tooth. Sometimes in first molars, and very often in bicuspid, we can get sufficiently good access to the cavity and canals by cutting away the postero-buccal surface of the tooth. But where we have to fill canals with the aid of the mouth mirror, it is usually better to cut both buccal and lingual sides. Having enlarged the cavity of decay, we then open up the pulp chamber with burring

engine and excavator, and then enlarge the orifices of the canals, making a kind of trumpet-mouth shape to each of them. In molar teeth, with a buccal cavity small and near the gum, the only thing we can do is to make a crown cavity with the burring engine. With a drill I make two, three, or four holes through the crown to the pulp chamber, and then open up with a burr head, usually a long burr drill. I consider a case like this a difficult one, and if the patient were over middle age I might hesitate to attempt the treatment of it, but in young teeth it can be successfully accomplished.

You have heard the saying, "keep your powder dry." The equivalent of that to us should be "keep your instruments sharp and well tempered." I am certain there are cases of failure when there need not be, because that is not attended to. To clean the canals, I usually begin with bicarbonate of soda. I fill the cavity of decay with it, add one drop of water from a syringe, and with one of these canal needles, slightly roughened, work it up and down and against the sides of the canals, then syringe out with warm water. If the canals are very foul, I do that twice or more. I then put one crystal of permanganate of potassium in the cavity of decay, add one drop of water, and work it into the canals as I did the soda, then syringe well out. Care must be taken not to force any of it through the apical foramen, because if any go through it will give pain, lasting sometimes two or three hours. I then fill the canals with carbolic acid, forcing it well to the very ends in the manner which I will now describe. Saturate well with carbolic acid a small pellet of cotton wool, put it in the cavity of decay, pass a *smooth* needle by the side of the wool into the canal and work it up and down. The needle, if it is of a proper thickness, acts as a piston, and the liquid can be forced to the very ends of the canals. I usually begin with a thick needle and finish with one fine enough to force the liquid to the very end, and if a little go through the foramen so much the better. When applying it to the roots of front teeth, where the crown has been lost by decay, or has been cut off preparatory to inserting artificial teeth, leaving no cavity to hold the cotton wool, I wrap a very slight shred of wool or floss silk round a slightly roughened needle and keep dipping it in the acid and forcing it in the canal till it is filled.

Having cleaned the canals, and applied carbolic acid, that is enough for the second visit. At the third visit, if the canals are clean and the tooth seems well, I use bicarbonate of soda and

carbolic acid as before, and then fill the root and the tooth. Permanganate of potassium should not be used at the last visit, because it discolours the tooth, and if there is still any odour from the tooth, it should not be filled, but should be treated with soda and the permanganate as before, finally filling the canals with soda and closing up with wax or cotton wool, with instructions to the patient to remove the wool if the tooth should ache. My usual mode of testing the cleanness of a canal is to pass one of these needles into it, then withdraw the needle and smell it. Whether the putrid matter enters the dentinal tubules to any great extent I do not know, but occasionally we find a tooth so permeated with this foul odour that it requires more time to putrify it, and it is sometimes only at a fourth or even a fifth visit that I fill such a tooth, and as long as there is the slightest trace of pus in the canals, or fistulous opening on the gum, or gumboil, the treatment should be continued with soda and carbolic acid, using the latter very freely. Sometimes about one-third of a nerve remains alive at the end of a root, very tenacious of its vitality and requiring patience to overcome it, but persistent acupuncture with carbolic acid will do it. I have not yet tried cocaine for this purpose, but should hope for good results from it.

We hear of some operators drilling through gum and bone and scraping off a pus-forming sac from the end of a root, but such treatment seems to me a little too heroic and unnecessary. Excepting in aged teeth, carbolic acid can usually be forced through the apical foramen, and I feel assured that when persistently applied, a very small quantity at a time of the liquid, full strength, is enough to destroy the sac, or it brings it into a state of quiescence. When it is possible the foramen should be slightly enlarged where there is a persistent discharge of pus. The treatment, to be quite successful, should be continuous, and when we have a patient who does not come at the appointed times, or comes only when the tooth has begun to ache again, it is better to advise the extraction of the tooth. I have got myself into disgrace by attempting to treat such a tooth for such a patient.

I always fill roots with oxychloride of zinc and nothing else, and I do not intend to discuss the use of any other material for that purpose. Suffice it to say that some years ago I used cotton wool, gutta percha, gold, amalgam, &c., but I have been most successful with oxychloride of zinc. The best oxychloride I have found for the purpose is Guillois' cement, because it is slow setting.

The method of filling is to mix it a very little thicker than cream, put it in the cavity of decay, introduce a thick needle into the canal, and pump the oxychloride as far as the thick needle will carry it, then use a thin needle to carry it to the end of the canal. It should be well and freely forced to the very end, and as soon as it *begins* to set it should be left alone till hard. Then scrape the oxychloride out of the cavity of the tooth, and fill with whatever material is most suitable for it. In filling roots where the whole of the crown is gone, I fill two thirds with oxychloride and the remaining third with amalgam. In filling the canals of posterior approximal cavities in molars, where it has to be done with the mouth mirror, if more time is wanted in working the oxychloride, it can be gained by adding about 20 per cent. of water to the liquid, which makes it set slower.

It has been said that, in filling canals with oxychloride of zinc, we should be careful not to force it through the foramina, but there can be no fear of harm from that when we do not enlarge them. They are so small that very little can go through, even though there were a vacuum in the socket to receive it, which there is not. Besides, it is a liquid we are using, and not a solid substance, which might be forced into the socket with pressure. Further, I maintain that a little forced through—if it be only a little—it will do no harm beyond giving slight pain for half-an-hour or an hour.

Dr. Marshall Webb has said (Notes on Operative Dentistry, 1883) we should enlarge the canal, when possible, up to the foramen, and then, before filling with oxychloride of zinc, close the foramen with gold foil. It seems to me that in doing so we would run a risk of having the gold foil pressed either too far or not far enough, either of which two conditions would be dangerous to the success of the operation.

Dr. J. Foster Flagg says (Dental Pathology and Therapeutics, 1873) that if one-third of a root be left unfilled, sooner or later it will give trouble. I think that is true of some roots only. I would not like to leave an upper incisor root only two-thirds filled, but I have done so often with the buccal roots of upper molars, and I know that many of these teeth have been all right for several years.

I think it is not good practice to fill roots with cotton wool and creasote, or carbolic acid. I remember three cases of periostitis, quite lately, where I found, on removing the stopping, the canals

filled with cotton, and smelling as strongly of creasote as if newly put in. Although the roots in these cases were apparently clean, trouble had been set up, from a few weeks to a few months after filling.

I will give you here, in their order, cavities of decay in teeth, which I find easy or difficult of access to the canals, beginning with the easiest :—

Upper front teeth—approximal and lingual cavities.

Upper and lower bicuspid and lower canines—approximal and crown cavities.

Upper front teeth—labial cavities.

Lower incisors—approximal cavities.

Upper molars—crown and antero-approximal cavities.

Lower molars—do.

Upper molars—postero-approximal cavities.

Lower molars—do.

Upper and lower molars—buccal and lingual cavities.

One word about temporary teeth. The difficulty in treating the roots of temporary teeth consists only in the age of the patient. The same teeth in the mouth of an adult could be easily treated. Appointments are also more likely to be neglected. Very often after the first visit, when toothache has been relieved, we see no more of the patient till toothache has returned, and the tooth probably in a much worse state than before. Thickening of the membrane and congestion at the root seem to come on sooner than with permanent teeth, probably because the foramina are often wide.

I only attempt to treat those in which the canals are easy of access. We can hardly do more for a patient so young, and usually restless, and little value is generally put on a tooth which is to fall out in a short time. When time for shedding arrives, absorption of the root does not take place as when in the normal state, and it is well to caution the patient's friends of that. If permanganate of potassium be used, it should be done with great care.

We cannot be successful in every case. I reckon my failures at about 10 or 15 per cent., and here is one that occurred to me three weeks ago. It is a lower bicuspid, with two distinct canals, and the lingual one, as will be seen, is filled to fully two-thirds of its length with secondary dentine, which was probably the cause of the failure.

Secondary dentine, and pulp stones, especially the former, are sometimes a formidable barrier to the opening of a nerve canal.

Excepting in straight roots, easily got at with a drill, when a canal is filled to nearly a half of its length with secondary dentine, nothing can be done, and we have only to hope it will not cause any trouble.

The PRESIDENT, after thanking Mr. Stirling for his very interesting and practical paper, said that according to their usual custom, the discussion would form part of the business of their next meeting.

Mr. MACGREGOR exhibited an upper model he had taken of very considerable dimensions. The patient was a man tall and strongly built, but, independently of that, the jaw was exceptionally large. Also a set of teeth carved in bone and encased in a tin box, in which condition they had been dredged up by a fisherman from Loch Etive. Both exhibits were handed over to the Curator.

The PRESIDENT exhibited the skull of an Australian Dingo, on one side of the upper jaw of which there was a supernumerary premolar. It was placed between the first and the normal second, and, while smaller than the first, corresponded with it in form. A similar case was, according to Mr. Charles Tomes, recorded in De Blainville's work on "Dental Anatomy," published fully forty years ago.

The Society then adjourned to February 12th.

The Odontological Society of Great Britain.

OWING to the fact of the January meeting of this Society falling on the 12th of the month, just as we were going to press, we were only able to give a hastily written abstract of Mr. Storer Bennett's paper, on the "Herbst Method of Gold-filling," and could not publish any report of the discussion. As the subject is one which is exciting a good deal of interest just now, it may be worth while to supplement our necessarily imperfect report by a fuller one.

With reference to the paper, we have little to add, except to correct an obvious slip in our abstract to the effect that the cavity is excavated after the matrix is fixed, and to note two or three practical suggestions made by Mr. Bennett which, so far as we know, have not been previously published. These were, the lining of the shellac matrix with platinum foil, which gives a very much better surface to the filling; the use of a fine cut burr, such

as is used for dressing down fillings, for restoring the cohesive property to the surface of the filling when, as occasionally happens, this has been apparently lost. This may result from continuing the pressure of the packing instrument too long; the gold then acquires a highly polished surface which cannot be made cohesive in the usual way by the use of the blunt-pointed instrument. But by rapidly rotating over the surface a smooth-cut burr, the polished surface is destroyed, and a perfectly cohesive one obtained; the filling is then proceeded with in the usual way.

Another of Mr. Bennett's suggestions had reference to an easy method of drying a cavity which had been accidentally swamped during the process of filling. After drying it as far as possible by the ordinary means, if a burnisher to which some gold is allowed to cling be rapidly rotated over its surface for a short time, sufficient heat is generated to dry it perfectly, and the filling may then be completed.

The annexed report of the discussion which followed the reading of the paper is slightly abridged from that given in the Society's published "Transactions."

Mr. VASEY asked if Mr. Bennett could explain how the non-cohesive foil became cohesive during this process? Was it due to the heat evolved by the friction of the burnisher?

Mr. OAKLEY COLES said that about six or seven years ago he tried some experiments in packing cohesive gold by means of the engine; but his idea had been to consolidate the gold by means of a revolving instrument giving a rapid succession of blows. For this purpose he had used a burnisher with rounded interrupted facets, somewhat resembling a tomato, and with this he was able, out of the mouth, to get very good solid fillings. There could, however, be no doubt that the cohesive quality of gold could be very quickly evolved by the heat generated by the rapid rotation of a perfectly smooth instrument, though he had not thought of this when he made his experiments. He considered that the profession was greatly indebted to Dr. Herbst for calling attention to this fact, and that the Society was much indebted to Mr. Bennett for bringing Dr. Herbst's discovery so clearly before it. The cohesive property of gold under certain conditions was, of course, no recent discovery; it had been known for thousands of years. But this mode of evolving it, and of securing condensation at the same time, was a novel application of known principles for which Dr. Herbst deserved all the credit.

Mr. HUTCHINSON thought Mr. Bennett's paper very clear and practical, but a still clearer idea of the process would be obtained, if at the close of the meeting, he would have an engine brought in and give a short demonstration of the principal points. Thus he had said that when the cylinders were first introduced, the engine was to be worked "slowly." How slowly? And afterwards that the point of the instrument was to be alternately applied to the gold and then removed, and that it must not be kept in contact too long. All these points could be shown in one minute by practical demonstration, whilst the mere verbal description of them did not convey a sufficiently definite idea.

Mr. Bennett had said that the most troublesome part of the process was the application of the matrix. He (Mr. Hutchinson) had been using a very simple matrix, which he believed to be a very decided improvement on the clock-spring, which had to be kept in place by wedges. It was made by breaking a small pen-knife blade with a thick back—a very common one would do—into short lengths. This formed a very perfect matrix, and its wedge-like shape made it very easy to fix in position, as it adapted itself well to the cervical edge; it could be easily bent if heated. It occurred to him, also, that a very simple and ingenious contrivance shown by Mr. Brunton at the meeting of the British Dental Association at Plymouth two years ago, would be an improvement on the shellac matrix described by Mr. Bennett. Mr. Brunton's arrangement consisted of a short piece of clock-spring, with the temper taken out of the ends, which were sharply bent on themselves; to these a rubber-dam clamp was attached, and a very efficient and readily applied matrix was thus made when a molar had to be built up.

Mr. WALTER COFFIN remarked that the great interest which this process had aroused in the United States might be taken as evidence of its practical value. Dr. Herbst's discovery that soft gold might be rendered cohesive by means of a rotating burnisher was a remarkable one. The value of lining a cavity with soft gold had long been appreciated by the best operators, and the difficulty hitherto experienced in attaching cohesive gold to it, in order to finish with hard contour work, would appear to be greatly lessened by this very important observation. He doubted, however, whether the first layers of soft gold, if applied with the rotating burnisher, would not be rendered less plastic and adaptable to the walls in proportion as it became hard and cohesive under its action. He

would therefore like to ask Mr. Bennett whether he did not think that the first layers of gold would be best applied by hand in the usual way?

Mr. WEST remarked that, so far as he had heard, this method appeared to be only applicable to easily accessible cavities. He should be glad to know if it could be applied in the case of a cavity requiring a right-angle attachment, such for instance as a buccal cavity in a lower molar?

Dr. CUNNINGHAM (Cambridge) said the subject they were discussing was a most interesting one. It appeared to him that Dr. Herbst's discovery was likely to exercise a most important influence on future practice. There were, however, some points which he should be glad to see made clearer. In the first place it seemed curious that only the Bremen gold should give good results. Then, he should like to hear a scientific explanation of the statement that the non-cohesive gold was made cohesive by the action of the revolving burnisher. Then it was said that Dr. Herbst had been at work on this system for six years, and he brought forward clock-spring as the best form of matrix which he could suggest. It appeared to him (Dr. Cunningham) that Dr. Herbst was rather behind the times. With regard, however, to Mr. Brunton's clamp, referred to by Mr. Hutchinson, it was unfortunately only applicable in certain cases. He (Dr. Cunningham) would suggest that a good matrix might be made by rolling platinum foil round the tooth, and securing it with a rubber-dam clamp. Possibly also some of the modelling compositions, such as the At impression material, might do instead of shellac. He thought that Mr. Bennett might have subjected his fillings to some better test than merely beating them out on an anvil. It would be interesting, for instance, to compare the specific gravity of one of Dr. Herbst's fillings with that of one made by other methods. Had Mr. Bennett tried the Bremen gold in the ordinary mode of working?

The PRESIDENT said he feared the most important points in the paper were being lost sight of; the precise form of the matrix was not an essential part of Dr. Herbst's method. He hoped that, as the time which could be allotted to the discussion was short, members would confine themselves as much as possible to the subject of the paper, viz., the advantages or disadvantages of filling teeth with soft gold with the aid of rotating points.

Mr. F. J. BENNETT said he quite agreed with what the President had just said; the exact form and material of the matrix was quite

a secondary matter. He thought a good deal of what had been said was not very much to the point. Mr. Storer Bennett had, he considered, put the subject before them in a very practical form, and the best thing members could do was to go home and try it for themselves.

Mr. HERN said he happened to be present when Dr. Herbst's brother gave the demonstration at the Dental Hospital referred to by Mr. Bennett, and he could not say that the results were altogether satisfactory. He noticed that the operator used unannealed cylinders for the deeper part of the cavity, but filled the last third with cohesive gold. He had since made a few experiments himself, and he found that there was no doubt about the fact that the gold did become thoroughly cohesive as the result of this process. But whatever might be the advantages of this method, its range of adaptability was limited, since it could only be applied to fairly accessible cavities. At all events there was very great difficulty in applying it to cavities which were out of sight, and in using right-angle attachments. It was most useful in cases where the walls of the cavity were frail; it was a great advantage in such cases to avoid blows, and better adaptation of the gold to the walls could be obtained in this way with less pressure. The gain of time appeared to him to be less clear; he thought he could fill a crown filling by hand quite as quickly as with the rotating burnishers.

The PRESIDENT said it appeared to him that a good deal of the criticism he had heard during the discussion was founded on theory rather than practice. But it was evident that Mr. Bennett had done a large amount of work, and had investigated the matter practically. All new methods presented difficulties, and no doubt the Herbst method was no exception. Mr. Bennett had shown that these difficulties could be overcome, and he thought that so far as the discussion had gone his verdict would be in favour of the practical success of which the specimens before him were evidence, and against the theoretical objections. He must now ask Mr. Bennett to reply.

Mr. BENNETT said his object had been to learn the views of the members with regard to this new method, and in this he had been fairly successful. In reply to Mr. Vasey's question his opinion was that the gold was rendered cohesive by the heat which was developed during the process of condensing it. The gold certainly did become hot, and if the operator was not careful the tooth might become so hot as to be unbearable, and the instrument too

hot to be touched. With reference to what had been said about the matrices, he admitted that this was the least developed part of the process; still they answered their purpose sufficiently well, except the shellac matrix, which was certainly not satisfactory; lining it with metal was a decided improvement. In reply to Mr. Coffin's suggestion, that it would be better to line the cavity with soft gold and condense this by hand, he could only reply that very perfect adaptation of the gold to the walls of the cavity *was* obtained by the Herbst method, as Mr. Coffin might satisfy himself by an examination of some of the specimens exhibited, and that this close adaptation was *not* destroyed by rendering the gold cohesive afterwards. Dr. Bodecker advised that the *last* layers should be made of cohesive gold condensed with the mallet, but Dr. Herbst was in the habit of using soft gold throughout, and all his (Mr. Bennett's) work had been done in this way.

The answer to Mr. West's question was that right-angle attachments could be used. With regard to Mr. Cunningham's remarks, he (Mr. Bennett) had used English gold as well as German, and had found that Jamieson's answered very well, though it was not quite as good, for this purpose, as Wolrab's. The Ar impression composition suggested by Mr. Cunningham for forming matrices would, he thought, be too soft for use in this process. He did not intend to imply that beating the filling out on an anvil was a conclusive test, still it was of some value. He might mention, as evidence of durability, that Dr. Herbst's brother had some large gold fillings in his mouth which had been inserted by this method two years before, and they showed no signs of wear. Dr. Bodecker had tested the specific gravity of fillings inserted by this method and with the mallet, and that of the malleted plugs was the higher. Wolrab's gold worked very well when used in the ordinary way. He thought Mr. Hern would find, when he had had more practice at this method of filling, that a decided saving of time was effected by it. He admitted that it might be better to use the ordinary method of filling for inaccessible cavities.

At the usual monthly meeting of the Society, held on the 2nd inst., Mr. SPENCE BATE, F.R.S., the newly elected President, occupied the chair for the first time. There was a full attendance, the country members showing in some force to welcome the first really provincial president; amongst those present were Messrs.

Rogers, of Cheltenham; Hunt, of Yeovil; White, of Norwich; Cunningham, of Cambridge; Tod, of Brighton, and others.

The Curator (Mr. HUTCHINSON) announced that Mr. Charlesworth had presented to the Museum some very good sections of the fossil teeth of *Elephas Meridionalis*; also that the gorilla's skull, exhibited at the last meeting by Mr. Storer Bennett, and remarkable for the presence of a supernumerary tooth on the inner surface of the ramus of the lower jaw, had been purchased by the Council.

Mr. STORER BENNETT announced that he had received from Dr. Herbst a set of specimens, illustrating his method of filling teeth by means of rotating points, which had been intended for exhibition at the last meeting of the Society, in connection with the discussion on the subject which then took place, but which unfortunately did not arrive in time. Amongst them were specimens of gold fillings, of tin and gold, and of amalgam, all inserted by Dr. Herbst's method.

Mr. CHARLES TOMES said his practical experience of the Herbst method was not as yet very great, still he had worked at it experimentally and he thought there were some points about it which were worthy of notice. There could be no doubt that by this method it was possible to make hard fillings which were perfectly water tight and proof against any ink test. It was easy enough to make such a filling with soft gold, but not at all easy with cohesive; in fact comparatively few cohesive plugs would stand the test if the ink was a staining fluid, and not composed of solid particles held in suspension. By the Herbst method, therefore, it was possible to get the adaptability of soft gold combined with the advantages of cohesive. Dr. Herbst was able to work by this method with great rapidity; he (Mr. Tomes) had not yet succeeded in doing it quite so quickly, but he could work in this way much more rapidly than with cohesive gold. He could not help thinking that the discovery had a great future before it; certainly by no other means could such perfect adaptation be obtained with so little trouble. The instruments required could be readily made by grinding down worn out burs.

Mr. WALTER COFFIN showed an operating stool designed by his brother, Mr. Harold Coffin. It consisted of a saddle-shaped seat, rotating and screwing up and down upon an upright stem, attached to a firm base by a strong conical spiral spring, which gave it some vertical play and unlimited angular motion in all directions.

Mr. ARTHUR UNDERWOOD showed models of the mouth of a young man, seventeen years of age, who had only three teeth of the second set as yet erupted. These were the two upper and right lower canines, and they closely resembled dog's teeth. The upper incisors were absent, and all the other teeth, both upper and lower, belonged to the temporary set. The patient's father and mother had perfectly natural teeth, but his sister presented the same peculiarities as himself.

Mr. GEORGE LUCAS, of Gravesend, read notes of an interesting case of deficient dentition which had been referred to him by Dr. Jones, of St. Bartholomew's Hospital, Chatham. The patient was a young woman, twenty-two years of age, who exhibited unmistakable signs of inherited syphilis. She had only two teeth, one in each jaw. That in the lower jaw resembled a wisdom tooth, but from its appearing when the patient was eight years of age, Mr. Lucas thought it must be an unusually small first permanent molar. That in the upper jaw appeared six years later; it was peg-shaped and occupied the position of a canine. The patient stated positively that she had never had any other teeth. As in other recorded cases of a similar kind this patient was almost hairless and had been so since birth.

Mr. DAVIS showed models of the mouth of a young man, aged twenty-six, with a remarkably wide open bite. Only three pairs of teeth met when the mouth was shut. The patient stated that his front teeth had never met, but the gap had been gradually widening.

Mr. ARTHUR UNDERWOOD related the sequel of the case of minute exposure of the pulp, which he had brought forward at the November meeting. Amongst other suggestions which had been offered, the President advised that the sensitive points should be touched with fuming nitric acid. This was tried, but it caused very great pain and the after results were not satisfactory. Mr. Underwood then put on the rubber dam and applied arsenic to the sensitive points, leaving it in contact for a couple of hours. This was followed by complete relief from the pain and tenderness, and there had been no recurrence since.

Mr. HUTCHINSON related the result of some experiments which he had lately made with the view of ascertaining whether cocaine was of any use for relieving the pain of extractions. He applied a pad of amadou on each side of the tooth to be extracted, dried the gum carefully, and then applied crystals of hydrochlorate of

cocaine all round the tooth. The result, in about two minutes, was almost complete anæsthesia ; the patient felt the digging of the instrument, but felt no pain. In another case, he extracted the buried roots of a second molar, after applying the crystals in the same way and with equally satisfactory results. There had been no sloughing or inflammation subsequently.

The PRESIDENT said he had obtained very good results from Mr. Brunton's citrate of cocaine as an obtundent for sensitive dentine.

Mr. HUTCHINSON said Mr. Brunton had also sent him some of his preparation, and he could confirm what the President had said respecting it.

The PRESIDENT then proceeded to deliver his inaugural address. After expressing his acknowledgment of the honour done him by his election to the Presidential Chair, Mr. Bate went on to give a survey of the past history of the Society.

When in 1856 the late Mr. Arnold Rogers read a paper "On the Reduction of Limaille," he commenced the literary history of this Society, the career of which has quietly and peacefully revolutionised the practice and position of the dental practitioner.

Before this Society was formed the members of our calling were not only scattered, but they existed in a common dread of each other. If a man had an idea in his mind that he thought was advantageous, he felt it to be his duty to keep it to himself, fearing that his neighbour might rob him of a privilege. Weak in himself he was jealous of those around him, not being able to realise that individual progress is always slow.

It was on the 6th of November, 1856, that a few earnest individuals—and they were very few—met to commence this Society, which has done such great things in the scientific progress of our profession, by gathering knowledge from all parts of the world, and presenting it open-handed to those who were desirous of learning.

When this Society commenced, there was scarcely any knowledge of work beyond that which could be produced from gold, silver, and bone ; mineral teeth had been scarcely a decade in existence, and these were not of that strength and adaptability as to exclude the human tooth from being largely utilised. Mechanical work was the great aim of the dentist, and to save a tooth that had pained was seldom attempted unless the dread of extraction overcame professional experience.

THE JOURNAL OF THE

When this Society was once formed, communications came in thickly, and men were willing to give their experience when they found others desirous of doing the same. Thus communications

forthcoming on all subjects connected with the teeth, and it will not be inconvenient to divide into the following, Mechanical, Anatomical (human and comparative), Physiological, and Surgical Dentistry.

As mechanical work was thought to be of the greatest importance, it naturally followed that most of the earliest papers were devoted to this department, and during the first five years of the society's existence such papers were numerous. In 1847, just twenty-six years ago, Mr. Putman, of New York, read a paper which marks a new era in mechanical dentistry, "On the Vulcanite Base as applied to Dentistry."

With the discovery of vulcanite as a base for artificial teeth, it would appear that dentists imagined that research had culminated in a climax; for with the exception of the beautiful and ephemeral *laid*, which has been brought before the society by Mr. Oakley in 1851, at one time, and later still by Dr. Hunt, of Yeovil, no fresh work has been made in this direction.

With improvements in materials and power of working, ambition appears to be satisfied, and perhaps when Mr. Verrier has enabled us successfully to add a continuous porcelain gumwork to the vulcanite base, we shall have approached within a measurable distance of a means of attaining as perfect an artificial denture as is at present practicable.

Papers relating to anatomy, both human and comparative, in the transactions were not so rich as they might be, considering the importance of the subject, but early in the history of the society Mr. Cattlin read a paper on "The Form and Size of the Maxillary Antrum," showing how varied is the form of that cavity, and how important it is that the dental surgeon should be familiar with its relations to the neighbouring organs which he has to treat.

This was followed, at intervals, by valuable papers by the late Mr. James, Dr. Murie, Professor Owen, Professor Flower, the late Professor Rolleston, and others; whilst in recent years very interesting communications on the anatomy and physiology of the various organs of the mouth have been contributed by Messrs. Rogers, White, A. Underwood, and Mr. Bland Sutton.

While referring with pride to the tone and character of the papers on Dental Anatomy and Pathology that have been brought

before this Society, we cannot help noticing that the greatest advancement of knowledge has been made directly in the line for which the Society was formed, that is, in the progress of dental surgery. And it is a curious and remarkable fact that, with the exception of a paper by Mr. T. A. Rogers "On Capping the Exposed Nerve," no communication on the treatment of the pulp with a view to the preservation of the tooth was brought before the society until July, 1860, or nearly four years after it was formed.

Nor is this a thing to be wondered at. Did I not say on commencement that we then knew but little, and that little we were afraid to communicate? Remember the state of dental surgery then.

The old key had struggled hard to retain its existence as a surgical instrument. It was only in 1846 that Mr. Tomes communicated to the *Medical Gazette* the character of forceps that has since been in use. The discussion between microscopists as to whether the dentine was penetrated by a system of tubuli or supported by fibres was rather suspended by the early death of Mr. Nasmyth than set at rest by accurate demonstration, and could not be said to have been determined until Mr. Tomes published his communication some years later in the *Philosophical Transactions* of the Royal Society. We had to wait until a new generation appeared whose professional education gave them power to observe and courage to think.

In 1860 Mr. Belisario sent us from the Antipodes his experience in performing the operation of Rhisodontrophy on teeth after the pulp had become inflamed and suppuration had been set up, with the valuable and important result that an examination made some months after by the cautious introduction of a drill into the cavity, which came into contact with solid substance, without producing the slightest uneasiness on pressure, clearly indicated that the pulp had calcified.

This communication was shortly followed by one from Mr. Coleman "On a method of Treating the Dental Pulp with a view to produce Calcification." His plan of treatment was the application of a strong solution of tannin in ether, and over this cotton and mastic.

At the next meeting, Mr. Samuel Cartwright read a paper giving his long and great experience "On Disease and Treatment of the Pulp," and other communications on the same subject by

Messrs. Arnold Rogers, Woodhouse, Dr. Walker, and others, soon followed.

Mr. Bate then went on to notice the valuable papers contributed to the Society by Mr. George Pollock, on the Complications of Alveolar Abscess, in which he related cases in which the eye, nose, antrum, and neck had become involved in inflammation set up by a carious tooth; by Dr. Lauder Brunton, on "Nervous Diseases connected with the teeth"; and by Mr. Henry Power on "The Relations between Dental Lesions and Diseases of the Eye," and added, "but time will not admit of our even mentioning one-half the work that has been done, or discussing such important subjects as the replantation and transplantation of teeth, which has been introduced to our notice by Mr. Woodhouse, Dr. Magitot, and Mr. Coleman, or more than to draw attention to such valuable contributions as those of Mr. Oakley Coles, 'On the Production of Articulate Sound,' and Dr. Langdon Down, late Resident Physician of Earlswood Asylum, 'On the Relation of the Teeth and Mouth to Mental Disease.'

"To review the progress that has been made in the recent manner of introducing gold and other fillings, together with the use of the rubber dam, which has completely revolutionised our practice and operations, would require a chapter in itself even to record the work that has been done.

"Our knowledge of dental caries has, through the researches of Messrs. Milles and Underwood, undergone an investigation that we sincerely trust will shortly lead to a conclusive demonstration of its true character.

"Within the period of the Society's history anæsthetics have undergone considerable investigation, and if for nothing else the value of this addition to surgical operations ought to make the name of dentist popular, the full advantage of which we may not be entitled to until we have discovered the means of obtunding pain in acutely sensitive dentine, which I trust the citrate of cocaine is about to bring us, a circumstance that will render our operations both more certain and less disagreeable.

"In glancing through the several volumes of reports, I think that the Society has cause to congratulate itself upon the position that it has taken among professional and scientific bodies.

"That persons have come from the Continent of America and the Antipodes, being students in our speciality, is a favour that was not beyond the reach of our hopes, but when we find that men of

world-wide renown, such as Professors Owen, Rolleston, Flower, and Murie, have sent us their researches on subjects relating to our studies, and that men like Power, Down, Brunton, Pollock, Hutchinson, and Richardson have made this Society the medium of their professional experience, we feel that the Society has a duty to fulfil and a reputation to preserve, which, with your co-operation and assistance, I sincerely hope will be both upheld and advanced during the time I have the honour of presiding over it."

At the conclusion of the address a vote of thanks to the President was moved by Mr. Vasey, seconded by Mr. Thos. Underwood, and carried with much applause. Mr. Bate briefly replied, and closed the meeting.

Edinburgh Dental Hospital.

THE annual meeting of this institution was held on the 29th ult. in the Hospital buildings, Chambers Street—Bailie Anderson presiding. Mr. James Robertson, hon. secretary, submitted the report, in which it was stated that the popularity and usefulness of the institution were increasing year by year. Last year the number of patients treated was 6279, of whom 3163 were males and 3116 females. This was an increase of 681 on the number in the previous year. In consequence of this increase the dental staff had had forced on them the necessity of acquiring larger accommodation, the present premises being too small and inconvenient for the thorough and efficient discharge of the increasing demands upon the resources of the institution. The staff, therefore, suggested the advisability of appointing an administrative committee to make the necessary inquiries with a view to having the hospital located in a new building. An increase in the voluntary subscriptions made by poor patients continued to show their appreciation of the benefits conferred upon them by the institution. The usefulness of the hospital in educating the dentists of the future was also becoming more and more apparent; while the facilities given to medical students were largely taken advantage of, especially by those who were looking to the navy or army as their future sphere of practice.

The Chairman, in moving the adoption of the report, remarked that though the Dental Hospital might be said to be in its infancy, it would have been scarcely possible to present a more satisfactory

statement of the year's work. The fact that there had been more patients was, he thought, an indication not only of the great good the hospital was doing in the community, but of the benefits which it was prepared to confer on a much larger number of their poor and suffering fellow-citizens. It had prospered so well that new buildings were now required. The dentists' profession, like all others, was growing in importance, and the necessity of a thorough and scientific training and education could not be gainsaid. He thought it a hopeful sign that science now directed its attention not so much to the curing of evils as to the prevention of them—not so much to the extracting of their teeth as to the preserving of those they possessed. Dr. Littlejohn, who seconded the motion, testified to the benefits conferred upon the poor by the institution and said he would bring before the committee of the colleges in Edinburgh the fact that medical students had here the means of getting that scientific knowledge in dental matters which they required. The report was adopted. Mr. W. Bowman Macleod, treasurer, stated that the income during the year amounted to £346 12s. 4½d., and the expenditure to £347 19s. 1½d., leaving a balance of £1 6s. 9d. due to the treasurer. The funds at the credit of the hospital amounted, however, to £249, an improvement to the extent of about £30 on those of the previous year. On the motion of Dr. Robert Reid, seconded by Councillor Clapperton, the following office-bearers were elected:—President, the Earl of Rosebery; Vice-Presidents, Principal Sir Wm. Muir, and Professor Maclagan; and Secretary, Mr. Lindsay Mackersy, W.S. A vote of thanks to the Chairman closed the proceedings.

MINOR NOTICES AND CRITICAL ABSTRACTS.

On Tin and Gold Filling by the Herbst Method.

The *Deutsche Monatsschrift für Zahnheilkunde* for last month contains a paper on this subject, written by the originator of the method. Dr. Herbst says that the idea of making tin fillings by the rotation method was first suggested to him by Dr. Von Langsdorff, of Freiburg, and it was at his house in the summer of 1883, that the first experimental fillings with this material were made. These proved so satisfactory, that Dr. Herbst at once adopted the method in his practice, using it only in cases where he should otherwise have used amalgam, cement, or Hill's stopping,

that is to say in patients whose teeth were so bad that fresh cavities had to be filled almost every six months. In Dr. Herbst's opinion tin fillings are in such cases preferable to every other material, even to the best amalgams and the best cements. Hill's stopping does equally well, but is too soft and becomes decomposed with time. Tin works very easily by the rotation method, and the only objection to its use is that it soon becomes dark. Tin mixed with gold becomes dark almost as soon as tin by itself. To obviate this, Dr. Herbst fills the cavity with tin up to the level of the enamel and then covers it with a layer of gold, especially those parts of the filling which are visible. Dentists, whose class of practice does not admit of their doing much gold filling would, he thinks, do well to make themselves acquainted with this method. Since the work is precisely similar to filling with gold, it keeps one in constant practice, and those who would stop well with gold must always be in good practice.

These stoppings are very easily and quickly made, Dr. Herbst finds the S.S. White "extra tough tin foil," Nos. 8 to 10, and the "Globe tin foil," No. 8, the best for his purpose. The tin must not be exposed long to the air before use, since a layer of oxide easily forms on it, and then the tin does not work well. He cuts a book into four parts, and two of these again into two strips, making in all six strips. Then he takes the strips one by one out of the paper and rolls them loosely between the fingers into a rope; these rolls are then cut into short lengths and kept ready for use in a stoppered bottle.

The rubber dam having been applied and the cavity excavated, he introduces several of the pieces thus prepared and condenses them with rapid rotation, adding more tin foil until he has reached the level of the enamel. Tolerably large and deep holes can thus be filled up to the level of the enamel with three or four layers of foil, and as the tin works very easily, this takes only a few minutes to do; about a quarter of the time which would be required for making a gold filling by the rotation method. The last layer, to which the gold is to be attached, must be very carefully condensed. When the cavity is filled up to the level of the enamel, he tries the surface of the tin all over with a hand plugger, especially at the margins, to see that it is thoroughly condensed, finally cutting away any excess of tin with an excavator. Then he completes the last layer with partially annealed gold, either with a hand plugger or with a rotation instrument unde

hand pressure. The mallet can be used if preferred, but he thinks the hand instrument does best. The "rotation instrument with hard pressure" is a new appliance which will shortly be obtainable from Messrs. Ash & Sons, and which he states will greatly facilitate and simplify his method. The gold readily unites with the tin. After the cavity is filled he still further condenses and polishes it with the rotating points, finally dressing down and polishing the surface in the usual way. The above description applies, of course, to a crown filling in a molar tooth, but interstitial cavities and cavities in front teeth can be filled in precisely the same way except that a matrix must be used. As already stated, Dr. Herbst specially recommends this method of filling for very bad teeth, teeth that require to be attended to almost every half year. He says "one sometimes comes across patients whose teeth are so bad that you are positively frightened when you see them again after a year's absence. You then filled most carefully even the smallest hole and fissure, yet in this short interval caries has often produced great devastation. Even if the fillings have remained firm, the teeth are often badly destroyed in other places." In such teeth a tin and gold filling will hold and last just as well as a pure gold. It is not necessary also to have such strong walls as for a gold stopping; the tin is soft, and under the rotation method easily accommodates itself with great exactitude to the walls of the cavity. The smaller cost is also an advantage in such cases. He considers them decidedly preferable to amalgam and cement fillings. They require but little more time to insert, and they present, if well done, exactly the same appearance as gold fillings.

At Dr. Herbst's request, Herr Wolrab tried to make a compound foil of tin and gold, but the attempt failed; no union could be obtained. Yet though gold and tin will not unite under the hammer of the gold beater, they unite readily under the rotation method, so that if an attempt be made to tear off the layer of gold, part of the tin comes away with it. It will be seen that only the tin is inserted by the rotation method, the gold cylinders being heated and condensed by hand. What the "rotation instrument under hand pressure" is, Dr. Herbst does not explain in this paper, but promises a description shortly.

Death from Alveolar Abscess.

CASES in which death occurs even as a remote effect of disease of the teeth are sufficiently rare to call for notice, and since, in most of these cases, the fatal result might have been avoided the record may convey a useful lesson.

The following case is reported by Dr. Colombe, of Lisieux, in the *Union Médicale*. The patient was a delicate child, ten years of age, whose brother and sister had died of meningitis. She had often suffered from inflammation about the teeth, which were in a very bad state, the crowns of all those in the upper jaw being worn down about one half. When first seen, on August 7th, she had already been confined to bed for five or six days with very acute pain in the left side of the face, accompanied by high fever. The whole of that side of the face was much enlarged, the swelling being hard and without any sense of fluctuation; it extended down the neck to below the level of the hyoid bone. The child could scarcely open her mouth, the gums were much swollen, temperature 103° . From the 7th to the 12th the swelling continued to increase. On introducing the finger, with considerable difficulty, into the mouth, an abscess was found over the hard palate; this was opened, but only a small quantity of pus escaped. By the 14th the oedema was beginning to subside, and the child was able to take small quantities of broth and milk. On the 16th the abscess in the mouth was found to have refilled and was again opened. The right eyelid now became oedematous. On the left side the veins over the jaw were very distinct, and one of them, running up towards the root of the nose, felt like a hard cord under the finger. The patient was now in a typhoid condition, with distended abdomen, incontinence of urine and fæces, &c. On the 18th two rigors occurred, the patient became delirious, temp. 102.2 , and next day she became comatose and died. No post mortem was made, but Dr. Colombe's diagnosis is probably correct, viz., "Alveolar periostitis with suppuration; consequent inflammation of the facial veins extending to the sinus of the dura mater." And there can be little doubt that had advice been sought earlier, and prompt measures been taken, the fatal issue would not have occurred.

NEW INVENTIONS AND PREPARATIONS.

Lawton's Absorbent Cotton; Wyeth's Compressed Tablets; Burroughs' Absorbent Paper Fibre; Burroughs and Welcome's Hazeline; Murray and Lanman's Florida Water.

THE above are preparations, all more or less useful to the dental profession, of which Messrs. Burroughs and Welcome, of Snow Hill, London, are either the agents or manufacturers. Some of them have been in use long enough to have established themselves firmly in the good opinion of the medical and dental professions, and therefore need little commendation from us. Thus Lawton's Absorbent Cotton is now largely used by dental practitioners, and we can scarcely imagine any one who has once tried it ever going back to the so-called "medicated" wool which was formerly in general use.

The Compressed Tablets, commonly known as Wyeth's, are also well-known and appreciated. A variety of these are made, consisting of a given quantity, generally 5 grains, of some soluble salt, which by being subjected to very considerable pressure, is made into a solid mass without the addition of sugar or any other admixture. Those most likely to be useful in dental practice are the tablets of chlorate of potash, and chlorate of potash with borax. Being hard, they dissolve very slowly in the mouth, and the full effect of the drug on the diseased surfaces is thus obtained more easily than by the use of mouth washes or ordinary lozenges.

Burroughs' Absorbent Paper Fibre is best described as something between ordinary lint and thick blotting paper. It is supplied in the form of sheets, and also cut up into small pieces,—square, triangular, or diamond-shaped—for the purpose of drying cavities. One objection to its use for this purpose is its tendency to become disintegrated when wet, and especially to separate into layers, which sometimes renders its removal from the cavity somewhat troublesome. There is, however, one purpose for which it is exceedingly useful. If a strip of it be loosely rolled, wrapped in a small piece of linen, and tucked into the cheek, it will arrest the parotid secretion better and for a longer period than anything else we know of.

Of the value of Hazeline in dental practice we cannot say much from actual experience. We understand that a trial is being made of

it at the Dental Hospital of London, and we hope we may be able to publish the results of this at some future date. It has been found in general surgical practice to be a valuable sedative application for inflamed and relaxed mucous membrane, and a more concentrated preparation of the same plant, the *Hamamelis Virginica*, known as "Pond's Extract," is already favourably known to dental practitioners as a useful styptic. From *a priori* reasoning, therefore, we should expect that Hazeline will be found of service as a non-irritating astringent in cases of inflamed and tender gums, and in the milder forms of Riggs' disease.

Florida water is generally associated with "toilette requisites," rather than with dental *materia medica*. It is, however, occasionally useful as an addition to mouth washes, and this of Murray and Lanman's is certainly excellent of its kind.

ANNOTATIONS.

THE Annual Dinner of the members of the Odonto-Chirurgical Society and Licentiates in Dental Surgery generally, will take place at Edinburgh, on Friday, the 13th prox. We believe Mr. Robert Reid, of Edinburgh, will probably take the chair, with Mr. Rees Price, of Glasgow, as vice, but details have not yet been finally arranged.

MOST of our readers are, no doubt, aware that this annual gathering always takes place on the same date, but probably few of them know what event is thus commemorated. It is not, as might be supposed, the foundation of the Odonto-Chirurgical Society, or any other Scottish anniversary, which is thus so faithfully celebrated, but the institution of the dental diploma by the English College of Surgeons. And it must be admitted that this event marks the commencement of a new era in our profession, and that it is well worthy of being held in remembrance.

AT the examinations for the Dental Licence of the Royal College of Surgeons, of Edinburgh, held last month, Mr. John Gardiner Fraser, of Caithness, passed his first examination, and Mr. Frank Hampton Goffe, of Birmingham, passed both first and final examinations, and was admitted L.D.S.

THE correspondence calling attention to the not altogether satisfactory condition of the dental departments at some of the General Hospitals, upon which we commented in our November issue, appears to have borne fruit at St. Bartholomew's. The dental department there has been greatly strengthened and entirely re-organised. There are now two dental surgeons and two assistant dental surgeons. Each of the former attends once in the week, whilst the latter attend on alternate days. There is thus a dentist in attendance every morning, and on Tuesdays and Fridays there are two. In this way it must be possible to get through a good deal of dental work. Judging, however, from the experience of other departments, we should expect that the supply of patients will increase just in proportion to the facilities afforded to them, and that thus at the end of a few months, the difficulty of performing conservative operations will be almost as great as they were formerly.

AN impostor who had for some time been travelling about the Midland Counties representing himself as a dental surgeon in distress, was last month, thanks to Mr. Crapper, secured at Hanley and sentenced to a month's imprisonment. As his time must have just expired, and it is generally found that individuals of this stamp return to their old tricks, it would be as well for dental practitioners to be on their guard. He is sharp enough always to give a name which can be found on the Register, and gives the name of some practitioner to whom he has been assistant for a number of years. He is, however, entirely ignorant of dentistry, and greatly prefers begging to work. We hope, therefore, that any of our readers who may be tempted to bestow pecuniary assistance on this unworthy object will refrain, and send it to the Benevolent Fund instead.

WHATEVER Dr. Lauder Brunton writes is worth reading, and to all who are desirous of having instruction pleasantly conveyed to them we would recommend the perusal of his Lettsomian Lectures on the Disorders of Digestion, delivered before the Medical Society of London and lately published in the *British Medical Journal*. Dr. Brunton does not fail to notice the fact that imperfect mastication of food is a very common cause of disordered digestion. This of course is a very well known fact, though very

often forgotten or not attended to, but the following is not, we believe, quite so generally accepted :—

“I have spoken of food and of cookery as moral agents, but a clear headed clergyman in New York has perceived that dentistry may be a moral agent, and he has insisted on all the people attending his mission-chapel keeping their teeth in good condition. If anyone have bad teeth, he is sent to a dentist, who fills or extracts them as may be needed. A dentist is supplied who does the work for nothing, if the patient cannot afford to pay. (The *New York Medical Record*, February 24th, 1883, p. 224.) Since the clergyman adopted this plan, he has had very much less trouble from drunkenness in his congregation.”

WHEN noticing a few months ago the annual report of the Glasgow Dental Hospital, we called attention to its good fortune in being provided with free quarters within the precincts of Anderson's College. We regret to hear that, more room being required owing to an extension of the technical classes, the hospital has received notice to quit, and will now be obliged to provide itself with a fresh habitation, probably on much less economical terms. A meeting, consisting chiefly of members of the profession, was held on the 23rd ult., Mr. W. S. Woodburn in the chair, to consider what should be done under the circumstances, and it was decided to appoint a committee to see what amount of support could be obtained from the public. We cannot believe that there can be any doubt as to the result if only the committee be sufficiently active and persevering. Glasgow is certainly rich enough to support such a hospital and poor enough to need it.

THE beginning of a new year has brought us three notable additions to our exchange list. The first is the *Austro-Hungarian Quarterly Journal of Dentistry* published at Vienna; it is well printed and contains some good original articles. Of the contents of the other two we cannot give any account. They are the “Skandinavisk Tidsskrift for Tandlæger,” published at Copenhagen, and a journal from St. Petersburg, of which our ignorance of the Russian alphabet prevents our giving the proper title. It has, however, been translated for us as the “Odontological Dispatch.” The interesting feature about them is, that each of them is the first dental journal published in its respective country.

A WOMAN was admitted into the Middlesex Hospital on the 14th ult. having swallowed a small plate carrying four front teeth.

Mr. Lawson ascertained that it was impacted in the œsophagus below the level of the cricoid cartilage, but could not succeed in disengaging it by means of forceps. He therefore cut down upon and opened the œsophagus and removed the plate, which was found to be fixed by the sharp points of the clasps by which it had been secured (?) to the neighbouring teeth. The patient has since progressed favourably, and we hope to be able to publish a fuller account of the case next month.

At the recent meeting of the Odontological Society both the President and Mr. Hutchinson fully confirmed what Mr. Brunton had stated, with reference to the good effect of the citrate of cocaine paste; some of our readers may therefore be glad to know how it is made. We may add that Mr. Brunton estimates that the paste contains about 50 per cent. of cocaine. He prepares it by precipitating the hydrochlorate with a slight excess of ammonia; the precipitated cocaine was washed with a small quantity of water, and then dissolved in alcohol. This solution was neutralised with citric acid and then evaporated to a pasty consistence. We should not, however, advise any of our readers to attempt to make their own citrate, unless they are accustomed to chemical manipulation, or they may easily succeed in wasting a good deal of their cocaine.

At a meeting of the Council, of the Royal College of Surgeons in Ireland, held on the 4th ult., the following were elected examiners in dental surgery for the current year, viz.:—Edward Stamar O'Grady, Henry Gray Croly, Henry G. Sherlock, J. Daniel Corbett, Robert Hazleton, and Richard Theodore Stack.

WE have been unable for some time past to notice the monthly returns of the London Dental Hospitals. That for last month from the National Dental Hospital shows a total of 2,550 cases treated, a figure which implies a very large amount of work for the comparatively small staff of the institution. It includes 545 adult extractions, 416 children, and 360 under gas. 60 gold and 613 other stoppings were inserted. 174 cases of irregularity and 379 advice and miscellaneous cases were dealt with. The total number of cases treated during 1884 amounted to 33,252.

AT the Dental Hospital of London there were 823 adult extractions, 374 children's ditto and 413 under gas. No less than 204 gold stoppings were inserted during the month, and in addition 600 plastic fillings. 187 cases of irregularity, and 327 advice and miscellaneous cases, make up a very respectable total.

THE January number of the *Independent Practitioner* contains a very interesting account, illustrated by very well executed drawings, of two specimens of pre-historic dentistry contributed by Dr. Van Marter, of Rome. One of these, found in an Etruscan tomb at Corneto, near Civita Vecchia, shows considerable skill in arrangement. It is an upper partial denture carrying a first bicuspid and two centrals; it is secured by rings of soft gold, which were slipped over the adjoining natural teeth. The centrals are said by Dr. Van Marter to be very skilfully carved from the teeth of some animal. This specimen is believed to date from about B.C. 600.

THE other is a somewhat similar specimen but of Roman origin, and dating from about 200 years later. It supports two inferior incisors, both natural teeth. Taken in connection with the recent discovery at Pompeii of surgical instruments which had been supposed to have been of comparatively modern invention, these interesting objects throw quite a new light on the history of Etruscan and Roman civilization.

THE January number of the *Revue Odontologique* contains a report of an interesting paper read before the Academy of Medicine by Professor Trélat, on the relative merits of plastic operations on the palate and the use of prothetic apparatus as a substitution for the former. In giving the history of these operations, M. Trélat stated that Roux created staphylorrhaphy during the latter end of his practice, but he then only operated on small fistulæ, the operation consisting in bringing together the two edges of the gap in the soft and hard palate, in addition to which the patient was obliged to wear a prothetic apparatus. This operation, however, was never practised by him before the patient reached the age of sixteen. A few years later Sédillot performed staphylorrhaphy in a young girl of ten. Seeing this, several surgeons expressed the opinion that the operation might be performed at a much earlier age. Otto Weber, of Bonn, and Billroth, had recourse to the operation in patients only a few months old. Simon, of Rostock, operated on an infant of fifteen days old, and Rouge, of Lausanne,

operated on an infant of only a week old. The operations in these conditions were not generally attended with success, which induced Maisonneuve, Larrey, and Nélaton to declare that the results obtained from plastic operations on the palate were far inferior to those obtained from prothetic apparatus. Notwithstanding this declaration by such eminent men, M. Trélat believes in the superiority of plastic operations, though he admits that in certain circumstances prothetic apparatus may be found useful as a *dernier ressort* when the operation has failed, or when the condition of the parts does not permit of one. Moreover, it must be remembered that these apparatus are not always well borne, besides being a source of much trouble and expense to the patient. M. Trélat had performed forty-six plastic operations on the soft and hard palate, and from his experience he concludes that these operations should not be performed before the age of seven, nor should they be undertaken when the opening in the palate is too large, or when there would not be sufficient substance in the soft parts. In concluding his paper, M. Trélat insisted on the necessity of submitting children affected by this infirmity to a sort of phonetic education, before as well as after the operation, particularly those who have a wide opening in the palate.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Mesmerism and Dentistry.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—The mystery originally surrounding the phenomena of mesmerism has been gradually dispelled before our advancing knowledge of psychology and cerebral physiology. During the long period which has elapsed since Dr. Elliotson took up the question, and over it brought himself in more senses than one to much regretted ruin, the phenomena of so-called "mesmerism" or "animal magnetism" have been investigated by numerous competent observers. It need hardly be stated that such a force as "animal magnetism" has no existence, and the name no place in scientific nomenclature. Mesmeric effects are, however, very real, and in the main are due to artificially induced conditions of hypnotism,—conditions resembling those spontaneously manifested in sleep-walking.

But my purpose in writing is not to enter into an elaborate discussion of these subjects. Those who care to enter upon them may find full information in current literature. The recent work of Prof.

Heidenheim on Hypnotism, of which an English translation has also been published, may be specially mentioned as containing the latest facts examined in the light of exact science. My object in writing is to utter a warning against the use of the mesmeric trance for the purpose of inducing anæsthesia during dental operations. One thing has been distinctly proved, which is that in the majority of cases, patients capable of being brought into the condition of mesmeric trance are individuals of a highly neurotic temperament, and that the "nerve storms" or perturbations associated with the hypnotic state are apt to inflict severe and permanent injury upon the nervous system, and thus to favour the development of permanent nervous derangements in individuals having a constitutional predisposition towards them.

These reasons alone are enough to prohibit the use of mesmerism in surgery, and for these reasons it is no longer employed. It was at one time so used extensively, and in particular upon some of the natives of India, who were found to be very susceptible to this influence : and many capital operations, such as the amputation of the hip, were, years ago, performed without pain to the patient.

In this land of freedom—a freedom with which, with all its abuses, I for my part have no wish to interfere—a land where any one, so long as he do not assume a forbidden professional title, may lawfully extract a tooth or amputate a thigh, it is not to be expected that the law will interfere to prevent "Professors" of mesmerism from getting an "honest living" by the public exhibition of the weaknesses of their victims, the miserable neurotic subjects who may be induced to submit to their experiments. But it is to be hoped that members of our profession will take care lest, by lending in the least degree their countenance to the performances of these "Professors," they tend to give renewed vitality to injurious superstitions, which ought by this time to be extinct amongst enlightened communities.

I am, Sir, your &c.,

PSYCHOLOGIST.

Filling Materials.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—My letter in the December number of your Journal has been at least of some small service, in that it has elicited the valuable communication of Mr. Thos. Fletcher which appears in the Journal of this month. If others will give hints and facts such as are contained in that communication, the correspondence which has been started will lead, I doubt not, to some practical result.

The point upon which I would insist is this : The manufacturer, who in most cases works by rule of thumb and who is often devoid of scientific knowledge, is able by experiment to produce amalgams and plastic fillings which answer their purpose much more efficiently than

the similar compounds of an earlier date. If then the manufacturer, influenced by purely commercial motives, and anxious above all things to produce an article that will sell, can achieve such results, might not much more valuable improvements be made by experimenters thoroughly conversant with the science of the subject as well as with the practical objects to be desired?

Of course the commercial man cannot be expected to make public the formulæ and mode of preparation of his compounds, and thus to deprive himself of the pecuniary reward which is his sole object. But, as I said in my previous letter, the men of science who devote much of their time to scientific research out of pure love of knowledge, without hope of fee or reward, might do worse than direct their attention to a full examination of the chemistry of plastic stoppings, in order to place the manufacture of these important compounds on a scientific basis, and to give them greater value in our art than they now possess.

I am Sir, yours, &c.,
EXPERIENTIA DOCET.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Recent correspondents on this topic would do well (and I think every practising dental surgeon would do well), to procure a copy of a work entitled "Plastics, and Plastic Fillings," by J. Foster Flagg, D.D.S., Philadelphia. No book that I know of contains such a practical and exhaustive presentation of the whole subject. It is brimful of information and suggestion upon every minute detail, both of manufacture and manipulation, and all set forth in a most interesting and readable form. The book can be procured through any of the depots.

Yours very truly,
W. H. WAITE.

APPOINTMENTS.

MR. ARTHUR KING, L.D.S.Eng., has been appointed House Surgeon, Mr. J. C. V. CROCKER, L.D.S.Eng., Assistant House Surgeon, and Mr. C. R. SMITH, Deputy Assistant House Surgeon, at the Dental Hospital of London.

MR. J. T. FRIPP, L.D.S.I., has been appointed one of the Dental Surgeons to the London City Mission.

We have received the following announcement with a request for publicity :—

MARGETSON.—On January 29th, at his private residence, Cliffeterrace, Horbury, W. Margetson, L.D.S.Eng., of Roscoe House, Dewsbury, in his 57th year.

ANSWERS TO CORRESPONDENTS:—

"HONORIS CAUSA": We agree with you in regretting that the writer of the letter referred to did not confine himself to a simple explanation, but beyond this we can see no reason for altering our decision, not to publish any more correspondence on the subject.

Mr. J. H. J. ASHTON: The matter you refer to has frequently been discussed by the Publishing Committee. We think you must admit that things have improved since the date of the specimen you enclose, and that but little objection can now be taken on the score of appearances.

V. A. C.: In common with most other journals, we expect that all communications addressed to us are intended for us exclusively, or, if this is not the case, that we shall be informed of the fact and allowed to form our judgment accordingly. Those who do not attend to this rule must not be surprised if subsequent communications are received with some suspicion.

COMMUNICATIONS HAVE BEEN RECEIVED FROM:—

Messrs. Jas. Parkinson, London; W. A. Rhodes, Cambridge; Oakley Coles, London; W. M. Fisher, Dundee; F. J. Pink, London; H. Sewill, London; Dr. Waite, Liverpool; J. H. Jones, Ashton-on-Mersey; "*Honoris Causa*;" Burroughs and Welcome, London; R. H. Woodhouse, London; "*Experientia Docit*;" W. B. Macleod, Edinburgh; F. E. Huxley, Birmingham; "*Psychologist*;" J. O'Duffy, Dublin; J. S. Crapper, Hanley; Geo. Lawson, London; J. S. Amooore, Edinburgh; Dr. Walker, London; Dr. Stack, Dublin; C. S. Tomes, London; J. S. Turner, London; F. N. Pedley, London; V. Cluse, London; &c.

BOOKS AND PAPERS RECEIVED:—

Dental Surgery for General Practitioners, by A. W. Barrett, M.B.; Helps to Health, by Henry C. Burdett; Zahnärztlichen Almanach, 1885, by Adolf Petermann, D.D.S.; Caulk's Dental Annual: Skandinavisk Tidsskrift for Tandlæger; Giornale di Correspondenza dei Dentisti; Correspondenz Blatt für Zahnärzte; Deutsche Monatsschrift für Zahnheilkunde; Monatsschrift des Vereins Deutscher Zahnkünstler; Revue Odontologique de France; Progrès Dentaire; L'Odontologie; Messenger Odontologique (Russian); Dental Cosmos; Archives of Dentistry; Dental Register; Ohio Journal of Dental Science; Independent Practitioner; Dental Advertiser; Items of Interest; Dental Record; British Journal of Dental Science; Transactions of the Odontological Society of Great Britain; Transactions of the Odonto-Chirurgical Society; Lancet; Medical Times; British Medical Journal; Chemist and Druggist; Staffordshire Sentinel, Jan. 10th; Dundee Advertiser, Jan. 16th; Glasgow Herald, Jan. 24th; Western Daily Mercury, Feb. 5th; &c.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, , at 5.30 p.m.; Committee of Management, , at 5 p.m.; Medical Committee, , 5 p.m.

National Dental Hospital.—

Odontological Society.—Council, Monday, March 2nd, at 7 p.m.; General Meeting, at 8 p.m.

British Dental Association.—Meeting of the Representative Board, Saturday, February 28th, at 3 p.m.; Publishing Committee, February 26th, at 5.30 p.m.

Members are reminded that their Subscriptions for the current year are now due, and should be remitted to the Treasurer, at 40, Leicester Square.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 3.

MARCH 16, 1885.

VOL. VI.

Contributive Negligence and Collective Investigation.

THERE is a peculiar fascination to some people in turning a letter over and over, and wondering who has sent it. The last thought that appears to come into their mind is that they should take the trouble to open the letter and find out. The faculty of superfluous speculation is not altogether unknown in the scientific world. The people who exercise it go through life possessed with a painless wonderment as to whether things are as they seem, and if they be so, why? But they lack the intellectual, moral, or physical stamina to take up the aggressive attitude that would enable them to arrive at a definite conclusion. They seem to be the Horatios of modern scientific research checking the incisive reasoning of a Hamlet with the familiar and feeble protest, "'Twere to consider too

curiously, to consider so." The traditions of their past student life are surrounded with a sort of reverence that forbids them to doubt their truth or prove their falsehood.

To such minds, what has been, must be ; and by the mere fact of being, prove their rightness. Men of this temperament are the technical Tories that, happily, form not an overwhelming majority. They probably never come into contact with the students, old or young, who remain in a chronic state "of wanting to know" the why and the wherefore of every problem that presents itself to their observation. To the well-disciplined Tory practitioner, what he regards as the morbidly restless activity of the British Dental Association must be peculiarly irritating. He wishes to be left alone. Why should he be urged to reveal the almost sacred records of his case book for the gratification of other people. Why should all the relatively unimportant details of his daily methods of practice be made familiar to a number of people in whom, he almost boastfully asserts, he takes not the slightest interest. The answer to this argument is that if our potential philanthropist be unconscious of any moral obligation that comes from being a member of a liberal profession, there is no reason why he should do aught else than make money, live at ease, and be consistently selfish throughout his entire career. Cynical critics may think that he has missed his vocation, and regard him as better fitted for a calling where grasping and greed are held in higher esteem than the alleviation of suffering by the widespread publication of individual or collective experience. It is very easy to say that all investigations of scientific truth should be undertaken and carried on by its professors and teachers. But it should be borne in mind that such a body of men are from the very nature of the case precluded from gathering up that vast amount of clinical experience that must be in the

possession of several thousand practitioners of dental surgery. The general body of medical practitioners have already recognised the fact that it is by the collective investigation of disease that we may hope to obtain the most reliable data for the diagnosis and treatment of a commonplace pathological condition. In a specialty so limited as dental surgery, it must remain as a rebuke to all of us that any point in practice should be involved in doubt or surrounded with mystery. The periodical revival of discussion on various modes of dealing with the problems of daily professional life, indicate to what an extent we have been relying hitherto upon the teaching of a few leaders, rather than depending upon the matured and assured experience of the majority of the practitioners of dental surgery.

It is an absolute duty, as it should also be regarded a high privilege, that each and all of us contribute a definite amount of exact information on all those points connected with the routine work of the consulting room that need more ample elucidation. Failing in this we fail in our duty to our professional brethren. Whilst a due recognition of the burden of obligation that is felt by the truly professional minded man, will advance the progress of our science as well as develop the best faculties of the individual practitioner. For those to whom we are appealing to say they have no time, is only equivalent to their saying they have no inclination. And what the want of inclination to help involves, it is unnecessary that we should emphasize by repetition.

ACCORDING to Caulk's Dental Annual, there are 12,150 practising dentists in the United States, of whom 61 are ladies. New York State heads the list with 1,762, and Pennsylvania comes second with 1,150; from these high figures we come by gradual descent to Arizona with four dentists, and Wyoming with two.

The Production of Paupers.

PAUPERS, unlike Poets, are sometimes made, not born. And this is somewhat the fashion of their making. A man starts in life with a small amount of capability for the practical work of his profession, and a large amount of laziness which he is prepared to develop to its fullest extent. As an assistant or practitioner, it is only in the nature of things that by the time he is thirty or five and thirty years of age, he has proved to a number of people his own sense of the unfitness of things. Work becomes irksome, routine a burden, and industry a base insult to the heart of a man born to freedom and enjoyment. Irregularity of life soon leads to irresponsibility for the so-called minor duties of life. The growing incapacity for earning an honest living generates contempt for the belief in such a necessity, and Circumstance, which our friend is good enough to regard as Providence, opens the way to the career of a systematic beggar. He loses his finger, or his child, or his wife, or his house—no matter what, so that he loses something—a subscription list is at once started by one of those benevolent people who are always ready to advocate the cause of a deserving man whom they are anxious to help with somebody else's money. Some give at once through sheer pity and good will. Others give at once because some one they know, or wish to know, has given; others again, and these are the really criminal class, give because they don't want to be bothered. Bothered by the knowledge of some one else's distress. Bothered by the application for help. Bothered by the duty of finding out whether help is likely to be a source of evil or unqualified good. "Five shillings can't do any harm." is the familiar excuse. But it does, all the same. It makes the lazy man a pauper by teaching him the elementary rules of begging. It blunts

the receiver's moral sense by putting him under an obligation which he has no intention of recognising. It reduces his inclination to work by showing how easily he may as a mendicant live without it. And at last he lies so systematically and fervently, that he believes thoroughly that times are out of joint, or he could never have been reduced to such extremity.

The career of such a man, is of course, rather an uncomfortable one, still, he looks at the bright side of things and the perpetual "moving on" which the exigencies of his life necessitate affords the charm of variety, though it lessens local interests. Such a class as that of which we have been describing an individual member should not exist. These people are the direct product of irresponsible and wickedly reckless charity. If a man needs help, five shillings will not put him straight, and if he does not need help of that sort, five shillings will do a good deal of harm. Besides there is no excuse for this sort of house to house begging at the present time. The Benevolent Fund is intended to deal with such cases, and to deal with them efficiently. The only thing is that the methods of administering the money in the hands of the Committee, are not in accord with the views of our peripatetic pauper, who is devoid of references, of no fixed habitation, and vague in the details of his previous history. These people should be relegated to the industrial thrift of our workhouse authorities, and should not be allowed to live on the bounty of hard working benevolent practitioners. Charity, doubtless covers a multitude of sins, but without true sympathy and discretion it may produce an infinity of evil.

ASSOCIATION INTELLIGENCE.

Meeting of the Representative Board.

THE Representative Board met on Saturday, February 28th, to transact the usual routine business. The following members were present :—Messrs. Fenn Cole, Ipswich ; Cunningham, Alfred Jones, and Rhodes, Cambridge ; Dennant, Brighton ; R. Rogers, Cheltenham ; and R. White, Norwich ; together with Messrs. Oakley Coles, Thomas Gaddes, Ashley Gibbings, S. J. Hutchinson, James Parkinson, T. A. Rogers, C. S. Tomes, Thomas Underwood, J. Walker, A. J. Woodhouse, W. H. Woodhouse, and F. Canton (Hon. Sec.), of London. Mr. J. S. Turner, Vice-President, occupied the chair.

The report of the Journal and Finance Committee was placed before the Board and adopted. A report of the Benevolent Fund was also laid on the table by Mr. Woodhouse. Several cases of alleged infringement of the Dentists' Act were brought under the notice of the Board and duly considered. A vote of thanks was passed to the Scottish Branch for the cordial reception accorded to the members of the Association at the Annual Meeting. The following gentlemen were elected members of the Association by ballot :—Messrs. Alfred Barnard, of London, and W. J. Bowden, W. H. Elwood, John McStay, and William McStay, of Belfast, and the name of Mr. W. Owen Mackie, of Salford, was received as having been elected by the Midland Branch.

Western Branch.

A MEETING of the Council of this Branch will be held at the Royal Hotel, College Green, Bristol, on Saturday, April 11th, at 3 p.m.

HENRY B. MASON, *Hon. Sec.*

3, *Bedford Circus, Exeter.*

Central Branch.

A MEETING of this Branch will be held at 71, Newhall Street, Birmingham, on Thursday, the 26th inst., at 5.30 p.m.

The discussion on Mr. Elliott's paper on "The Treatment of Pulpless Teeth" will be resumed. Mr. Huxley will read a paper on "Constitutional Treatment in Caries," and Mr. Humphreys one on the "Dentition of certain Mammalia," with specimens.

Midland Branch.

THE Annual General Meeting of this Branch will be held at Nottingham, on Friday, the 17th prox., under the Presidentship of Henry Blandy, Esq., L.D.S. On Thursday, the 16th, the Mayor of Nottingham, Sir James Oldknow, will hold a reception in the Castle Museum, at 8 p.m. Next morning demonstrations will commence at 9 a.m., and the exhibition of dental specimens, instruments, and appliances, electric lighting and machinery, &c., will be open for inspection at the University, Shakespeare Street.

At 10 a. m., there will be a meeting of the Council, and at 11 a.m., the Business Meeting for the reception of reports, election of officers, &c., for members only, will be held at the University.

At 12 o'clock, the President will deliver his address, on which discussion will be invited. At half past one there will be an adjournment for luncheon, after which (at 2.30) the members will reassemble to hear casual communications and papers. Dr. Marshall will read a paper on "Nutrition in Early Life, as affecting the Teeth," Mr. F. Harrison will read one "On Preparing Tissues for Microscopical Examination," and another will be read by Mr. L. Matheson on "Artificial Separation of the Teeth, as a means of facilitating filling, and as a permanent operation for the prevention of decay."

The members will dine together at the George Hotel, at 6.30; tickets, 7s. 6d. each, to be obtained at the hotel.

Mr. D. S. Hepburn, 9, Wellington Circus, Nottingham, will be glad to receive exhibits or to give any further information.

Meeting at Manchester.

A MEETING of Members and Associates of the Midland Branch was held on Saturday, February 21st, in the rooms of the Young Men's Christian Association, Manchester. Present:—Messrs. Joseph Harrison (President), T. Mahonie, J. L. Pike, F. Dale, J. Spotswood, F. Harrison (Sheffield), L. Matheson, E. H. Williams, W. Dykes, H. C. Smale, G. Broughton, W. Broughton, G. Frost, W. O. Mackie (Manchester), S. Wormald (Treasurer), Stockport, W. H. Waite (Secretary), W. H. Jewitt, W. Ladyman, T. Dilcock (Liverpool), G. Brunton (Leeds), A. A. Matthews (Bradford), T. Murphy (Bolton), J. Renshaw (Rochdale), H. Blandy (Vice-President), Nottingham, D. A. Wormald (Bury), W. Shillinglaw (Birkenhead) and several others.

There being no formal programme, the President invited members to bring forward any matters they might wish to exhibit, or to discuss.

Mr. BRUNTON had brought a very nicely adjusted "Electric Mouth Mirror and Laryngoscope," which he explained, and this elicited some interesting details of experiments in electrical appliances, during which Mr. W. Broughton gave the results of his own investigations, and promised to bring to the next meeting an "Electric Motor," which he was at present engaged upon.

Mr. RENSHAW also described an "Electric Motor," made by Cuttriss, of Leeds, which he had been using for some time in connection with the engine.

Mr. BRUNTON exhibited some regulating plates which he had employed recently in cases of contracted arch and protruding front teeth.

Mr. MURPHY also showed models of two or three different cases of irregularity, and described his method of reducing the same. Some discussion followed as to the length of time needful for continuing the use of retaining plates.

Mr. MATHESON introduced some models illustrating his treatment of a case of inverted upper central by torsion. Also, by means of the blackboard, he very clearly explained another very difficult and complicated case which he had treated, both of these having come under his notice at an industrial home with which he was professionally connected.

Mr. F. HARRISON showed a specimen of salivary calculus, in which was embedded a small piece of artificial work, upon which some ingenuity had been displayed by the wearer. Messrs. W. Dykes, W. Shillinglaw and others also produced models of cases.

Conversation then turned upon the new anæsthetic Cocaine. Mr. MATHESON detailed his experiments with a five per cent. solution of the hydrochlorate, and expressed his favourable opinion in regard to it in cases of sensitive dentine, and specially for cervical cavities. Mr. BRUNTON gave some results which he had obtained from the use of citrate of cocaine, procured from Reynolds and Branson, of Leeds. Mr. MAHONIE also testified to the value of this agent, having experimented with a 10 per cent. solution of the hydrochlorate. He had removed that morning the pulps from two upper canines, which had been cut off the day before, after applying the cocaine to each exposed point

for about half a minute. The opinions of all who had tried cocaine were decidedly in favour of it, though results were certainly not uniform.

Mr. S. WORMALD, in proposing a vote of thanks to the President, expressed his pleasure at seeing so large an attendance, and welcomed it as a sign of progress. He had been reading the leading article in the Journal, and, in thinking over the situation of things, as there indicated, it had occurred to him that our next advance should be to endeavour to obtain a representative on the General Medical Council. We had in our ranks men thoroughly fitted to occupy a seat, and he felt that the time could not be far distant when some steps would be taken in that direction.

The SECRETARY said he was also much delighted at the success of their meeting, and especially desired to welcome the brethren from Sheffield who had mustered so strongly. The Council had been considering a suggestion to the effect that these occasional meetings should not be confined to Manchester, but be held at different places, and he had no doubt that next winter some effort would be made to comply with this very reasonable request. He was heartily in favour of the idea thrown out by Mr. Wormald in regard to the Medical Council. The ignorance of that body upon dental matters was patent, and since they had legislative power vested in them, it was but right and fair and necessary that there should be someone to represent and defend the interests of our profession. He was glad the point had been raised, and trusted it would not be allowed to drop. He had pleasure in announcing that the arrangements for the annual meeting at Nottingham were in very satisfactory progress, and there was every prospect of a most successful anniversary.

The PRESIDENT assured the members that it always gave him great pleasure to do anything in his power to further the interests of the Association or the Branch. He was very much gratified with the evening's proceedings, and proud to see his own town so well represented there.

By Balance from Receipts and Expenses Account	50 0 0	Less amount credited for "Association Journal" account below	179 4 4	358 8 8
" Printing, &c.	47 17 1			
" Salaries, &c.	37 14 3			
" Balance carried down	79 7 8			
	30 4 6			
	<u>270 3 6</u>			
		<i>Association Journal Account.</i>		
		Subscriptions as above	179 4 4	
		Sale of copies of Journal	27 19 10	
		Advertisements	200 0 6	
			<u>407 4 8</u>	
				<u>£765 13 4</u>
		By Balance brought down	46 3 10	
		" Ditto from last account	740 19 5	
			<u>£787 3 3</u>	

THE BRITISH DENTAL ASSOCIATION.

Balance Sheet.

1st January, 1885.

Dr.

To Balance from Receipts and Expenses Account	787 3 3	By Cash at Bankers	554 15 0
		" Ditto in hands of Treasurer	32 8 3
		" Goodwill of Journal	200 0 0
			<u>£787 3 3</u>

70 and 71, Bishopsgate Street Within, E.C.
1st February, 1885.

Examined and compared with the Books and Vouchers and found correct,
RAIT & KEARTON (Chartered Accountants), Auditors.

BENEVOLENT FUND OF THE BRITISH DENTAL ASSOCIATION.

Balance Sheet as at December 31st, 1884.

Dr.		Cr.	
Balance Sheet as at December 31st, 1884.			
	£	s.	d.
Donations ...	...	...	...
Subscriptions, 1884...	...	...	...
	692	11	6
	173	11	6
Benevolent Allowances ...	...	...	...
Printing and Stationery ...	...	...	...
Postages and Miscellaneous	...	...	...
Investment of Capital, } £535 8s. 9d. 2½% Consols }	...	...	...
Cash in Bank of England ...	...	223	14 11*
Cash in hands of Treasurer	...	2	1 0
			225 15 11
	£866	3	0

* Of this sum of £223 14s. 11d., £104 belongs to *Capital Account*, being Donations of £5 and upwards.

February 26th, 1885. We have examined the Books of the British Dental Association with the Vouchers, and hereby certify the above Balance Sheet to be correct,

Auditors.
WILLIAM ASH,
W. F. FORSYTH,
ASHLEY GIBBINGS,

THE JOURNAL OF THE

cution under the Dentists Act.

Alexander Ross French, formerly a confectioner who had for some time been practising as a dentist in St. Andrews, was on the 6th inst., summoned by Sheriff Henderson, at Cupar, Fifeshire, with reference to the Dentists Act.

It was stated that Alexander Ross French, formerly a confectioner, and now or lately residing at 193, South Street, St. Andrews, had contravened the Dentists Act of 1878, in that between July, 1884, and January, 1885, unlawfully used the name or title of "Dr." French, "Dental Surgeon," and the same on a door plate, lamp, and sign of business at St. Andrews; and also with reference to the names or titles of "D.D.S.," "Resident Surgeon," "Dental Surgeon," and "D.S.," by publishing the same in newspapers, on hand-bills, and circulating the same in St. Andrews.

James Robertson, St. Andrews, appeared for the prosecution, defending himself.

French pleaded "Not Guilty," and objected to be deposed as a confectioner.

James Robertson, Solicitor, of Edinburgh, deposed that he was the Registrar of the Scottish Branch of the Dental Association, and that that body had given its consent to the prosecution. He produced the Dentists' Register for last year, and stated that the name of Alexander Ross French did not appear in it, and that the name did not appear in the Medical Register. He also produced proof sheets of the London and Edinburgh Registers, and was satisfied from his official knowledge that the name did not appear in any of them, and that French was not entitled to practise.

James Macleod, George Square, Edinburgh, stated that he was the Secretary of the Scottish Branch of the Dental Association, and was the complainant in the case. He stated that he brought under his notice in his official capacity the case, and obtained permission to prosecute.

James Robertson, bootmaker, St. Andrews, proved that the facts specified in the summons. His evidence was supported by James Robertson and Joseph Graham.

French made a long and rambling defence, dwelling on the fact that he specially stated in his advertisements that he

was not registered, and had not assumed any title which implied that he was registered. The title which he had assumed, "D.D.S.," was not a registrable title, nor a British qualification; the only registrable dental title in Great Britain was that of L.D.S., and that he had never laid claim to. He argued, therefore, that he had not attempted to deceive anybody as to his real position. He asserted that he had great skill in the exercise of his profession, and could do better than many of those who made a great fuss about being registered. He complained of the high fees charged for the dental diploma, and asserted that if it were not for the expense he should be quite willing to submit himself for examination.

The Sheriff said it was impossible for him to do otherwise than convict. The offences proved were a clear contravention of the 3rd and 4th Sections of the Act. He assured the defendant that he would find it a very difficult matter to set himself against an Act of Parliament and against society, and he advised him to give up exercising his wits in endeavours to circumvent the plain words of the Act.

In reply to a question from the Sheriff as to whether the prosecution demanded the infliction of a substantial or only a nominal penalty, Mr. FLEMING replied that they had offered to withdraw their complaint if the defendant would promise to conform with the provisions of the Act for the future, but he had declined to do so. He had, in fact, put the prosecution to considerable expense.

The Sheriff then said that the defendant having pleaded "not guilty" had obliged the prosecution to incur additional expense, which it would be necessary to recoup. The accused would have to pay a fine of £10, failing the payment of which he would be imprisoned for seven days. He would be allowed three days to decide which of these alternatives he would choose.

The Defendant stated his intention of appealing against this decision.

The Dental Benevolent Fund.

THE following additional donations and subscriptions have been received up to the present date :—

	Donations.	Ann.	Subs.
Charles Weston, 2, High Street, Ventnor, Isle of Wight (<i>increase from 10s. 6d.</i>)	—	£1	1 0
G. Prescott Mallan, 30, Monmouth Road, Westbourne Grove, W.	£2 2 0	2	2 0
James E. Tuxford, 8, Bail Gate, Lincoln	0 10 6	0	10 6

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	Donations.	Ann. Subs.
y Jones, Rose Bank, Ashton Lane, n-Mersey	—	£0 10 6
ling, 28, Castle Street, Shrewsbury and, 108, Renfield Street, Glasgow <i>from 10s.)</i>	£5 5 0	1 1 0
Clarke, Forbury, Reading ...	—	1 1 0
136, High Street, Oxford ...	—	0 10 0
Machin, 27, Foregate Street, Wor-	—	0 10 0
... ..	—	0 10 0
Mcintosh, 18, North Bridge, Edin-	—	1 1 0
... ..	—	1 1 0
ly, 140, Harley Street, W. ...	2 2 0	1 1 0
h, 47, Stockwell Street, Leek ...	—	0 5 0
nds, 25, Chowringhi, Calcutta (<i>addi-</i>		
... ..	5 5 0	—
nson, 36, Sackville Street, W. ...	1 1 0	—
Parkinson, 36, Sackville Street, W.	—	1 1 0
l Mummery, 10, Cavendish Place,	—	1 1 0
... ..	—	1 1 0

A. J. WOODHOUSE, *Treasurer.*
OAKLEY COLES, *Hon. Sec.*

ORIGINAL COMMUNICATIONS.

Note upon the Re-formation of Bone.

By CHARLES S. TOMES, F.R.S.

te Dr. J. R. Wood, of New York, was one of the
n sub-periosteal operations for the removal of necrosed
the museum which he gave to Bellevue Hospital, with
was long connected, contains several remarkable speci-
reproduction. The most striking is the skull and lower
patient who had suffered from phosphorus necrosis ;
lower jaw was removed by Dr. Wood, the periosteum
fully preserved. No condyle was reproduced, but thin
f bone tolerably closely applied to the glenoid region
place ; the body of the new jaw, however, presented a
se resemblance to an ordinary edentulous lower jaw.
is another specimen which consists of the symphysis and
2-thirds of the body of the lower jaw, also removed for
it is noted that at the time of the operation the teeth
in place by the gum only, but they were left and the new
built up so as to embrace them ; three years after the
the teeth were firm and thoroughly useful.

Two other specimens consist of segments of the lower jaw resected on account of neuralgia; one involved the whole depth of the jaw, and included the two incisors, the canine, and the two bicuspid, and the other also involving the entire depth of the jaw had been taken near to the angle; it is noted that there was reproduction of bone in both cases, and also that there had been no return of the neuralgia. Another case in the museum is a skull with a lower jaw imperfect upon one side, which is catalogued as "reproduction of bone," but no history is appended to the case, and I strongly suspect it to be one of those cases of unilateral imperfect development of the jaw which are rarely met with, but of which one example exists in our own Dental Hospital museum.

It is doubtless sound practice to retain the teeth in many cases of necrosis, and it is often possible to peel away from them their necrosed alveoli a bit at a time. But my own somewhat limited experience of such cases leads me to doubt whether this rule is of universal applicability.

A few years ago a patient consulted me who was suffering from an osteitis involving the three back teeth of the right lower jaw; he had contracted syphilis twenty years before, had gone through the usual train of symptoms, and had had no manifestation of the disease since. After using every endeavour to save the teeth, I ultimately removed them in a sequestrum, but had no sooner done so than the osteitis crept forward and involved a fresh set of teeth and their surroundings. That the disease was syphilitic was put beyond doubt by the supervention of pains in the head and of a swollen testicle; the patient consulted two eminent specialists, and was put upon anti-syphilitic treatment, but with no avail; locally iodoform packings, &c., were assiduously used; but, notwithstanding all, in successive operations extending over about six months, I removed all the teeth in sequestra which involved the whole alveolar bone; that is to say I did so until there were about four teeth remaining, and these were just commencing to be attacked; at the patient's urgent request, and in accordance with my own judgment, these were removed without waiting for much inflammation. The osteitis about their sockets never ran on to necrosis, whereas it had done so in every previous instance; that is to say, the osteitis went on as long as there were teeth and alveolar bone to attack, the base of the jaw having been from first to last healthy. I could not resist the conclusion that if

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been less conservative in the matter of teeth my patient have been well some months sooner.

cases in which bone reproduction seems to take place best case in which there is a sudden necrosis either as a result of or of the poison of phosphorus, or of the exanthemata. Goodwillie, however, showed me some models in which there seemed to have been a good deal of reproduction even in cases of phlegmonous perforation of the palate.

consideration of repair after necrosis leads naturally to the reproduction of bone which it is claimed can be conducted after the treatment of the wasting of the alveoli by scraping the edges with Dr. Riggs' scalers or analogous instruments, there can be no doubt that in a case of *Pyorrhoea alveolaris* the high carrying out of this form of treatment is followed by marked amelioration of all the symptoms, and that the thinning of the gums do shrink down again and embrace the necks of the affected teeth; but in this country there is a good deal of scepticism as to the lost osseous tissue ever being reproduced.

the strong tendency to recurrence which is always met with hardly to be expected, *a priori*, that bone would be built up, parallel to the removal of a mass of necrosed bone from the comparatively healthy periosteum has already detached is not very close; so that it would be a particularly interesting fact were it proved to take place. I was therefore very glad to have the opportunity of inspecting some of the cases in which it was supposed to be demonstrated, but I was disappointed in the evidence obtainable, and it appeared to me to need a strong predisposition in favour of the view to enable one to see it; and I am afraid that I thought of a definition of "faith" which would have the effect that it is a property of the mind by which you are led to believe that which you know is not true.

Osteoma of the Superior Maxilla.

By ARTHUR W. W. BAKER, M.B., CH.M., Dublin.

READER TO THE DENTAL HOSPITAL OF IRELAND, AND DENTAL SURGEON
TO ST. MARK'S OPHTHALMIC HOSPITAL.*

OSTEOMATA, or exostoses, of the alveolar process receive but little attention from most writers on dental surgery, and such cases are chiefly noted by them as appearing on the lingual surface of the lower jaw, where they are far from uncommon. Mr.

Read before the Pathological Section of the Academy of Medicine in Dublin, December, 1884.

Tomes, however, describes a case in which a bony ridge projected like a shelf from the labial surface of the upper jaw, the only inconvenience to the patient being the retention of food on this shelf. A somewhat similar case occurred in my own practice, where, in a lady, the labial surface of the upper jaw was studded with little nodules of bone which ran in a continuous line, about the level of the roots of the teeth; these little growths used to ulcerate through the gum from time to time, exfoliating a small scale of bone. This patient when she consulted me two or three years ago was in a great state of fright, thinking that she was the victim of a malignant disease. I, however, assured her that there was not the least cause for alarm, and in this opinion I was supported by Mr. Stack, Mr. West, and my father, who saw the case in consultation with me. Our prognosis has been fully verified, for the lady came to consult me recently and I find she has had no further trouble.

In Wedl's Pathology of the Teeth, he states that he has met with osteomata appearing, as if they had been dropped upon the alveolar process of the upper jaw,* only upon the facial surface, and corresponding to the localities of the canines, bicuspid, and molars.

In the case which forms the subject of this communication, the osteoma sprang from between the palatine and facial alveolar borders, in fact, occupied, to a certain extent, the position of the first left upper molar tooth.

About the beginning of December last year, Miss ———, aged 45, was sent to me by my colleague, Mr. Story, under whose care she had been for an abscess in the right ear. It was, however, on account of a tendency to deafness in the left ear that Mr. Story wished her to see me, thinking that the irritation of the fifth nerve by some roots in the upper jaw on the left side was a probable cause of the deafness.

On examining the patient's mouth, I found in the left half of the upper maxilla, the roots of the third and second molars; the first molar was absent, and in the position it should have occupied, the gum presented an unusually rounded appearance with a small opening, through which exuded a few drops of cystic looking fluid. The opening was unlike that which usually leads to a root. The

* Similar growths occupying the centre of the hard palate are familiar to most dental surgeons, I have a cast of an excellent example in my possession.

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d bicuspid was standing and in good condition. The first
id and canine were wanting. The pulps in the central and
l were dead; and on the labial side of the gum, about the
e eminence, there was an opening similar to that which I
e described as existing over the socket of the first molar, and
urging a similar fluid.

m the history the patient gave me, I found that the first
and first bicuspid had been extracted, but I could not find
hether the permanent canine had ever been erupted; at all
I could find no history of its ever having been extracted.
yst towards the front of the mouth had been noticed for the
ght or ten months, but, beyond the discharge, caused no in-
nience.

ecided, in order to carry out Mr. Story's views, to remove all
ots on the left side of the jaw, and to endeavour to effect a
e of the cyst. I removed the roots of the third and second
s, and proceeded to grasp with the forceps what I thought
prove to be the root of the first molar, but failed, and instead
upon something unusually dense. I then divided the gum,
was freely moveable and not attached to the growth, and
i in a probe to examine it.

m the enamel-like and nodulated surface, rendered very slip-
nd indistinct by blood, and more especially from the sulcus
: buccal surface, I thought I had come upon the crown of a
or unerupted tooth; or failing that, an odontome springing
he root of the second bicuspid.

ng unable to move this growth by any ordinary force, I de-
ied to remove the second bicuspid, thinking that if it were
ontome, perhaps the removal of the tooth would bring the
along with it. (Like the case described in Mr. Heath's
on "Injuries and Diseases of the Jaws" 3rd edition, p. 224.)
moved the tooth, but the growth remained, and I afterwards
ed or rather fractured it off from the alveolus with the
s, being quite unaware at the time of its real nature.

a subsequent visit I made an examination of the cyst which I
bed as presenting a small opening on the labial surface of the
ear the canine eminence. This opening was very like the
ig that had existed over the little tumour, and through it, as I
aid, exuded a similar fluid. On passing a probe in I was
to touch anything but soft walls all round. The cavity
ed from the middle line back to the socket of the second

bicuspid, and I found that a considerable portion of the hard palate was absorbed. As far as I could determine, there was no connection between this cavity and the little tumour I had removed.

On different occasions, my friends, Dr. Stack and Mr. West, happened to call while the patient was with me, and my patient and I had the advantage of their opinion. They agreed with me in supposing that the cyst was most likely due to the retarded eruption of the canine tooth, although we could not detect it in any part of the jaw; we also satisfied ourselves that the cavity was not connected with the antrum. The treatment I had adopted also met with their approval—viz., syringing out the cavity with carbolic lotion, containing about two per cent. of the acid, and plugging the cavity with cotton wool. Subsequently I removed the left upper central and lateral incisors, as their roots could be plainly felt in the cavity, and as they possibly might be preventing the closure of the cyst. The few days succeeding the extraction, the patient suffered a good deal of pain, and had some epistaxis from the left nostril. I may add for an unusual length of time the socket showed no signs of closure.

When I thought of making this communication, I wrote to my patient requesting her to call on me; subsequently I received a note from her stating that she was out of town, and hoped to call on me on her return, adding that the discharge from her gum still continued, and that there was some soreness in her nose on that side.

The extreme difficulty of forming a correct diagnosis in this case as to the connection, if any, between the extensive cyst in the front of the jaw and the little osteoma which I removed, and further, when dealing with the tumour, as to whether it was an osteoma, an odontome, or a buried tooth, may be seen by the fact that each of these pathological conditions have some points in common. The absence of one or more teeth from their proper place, is a sign which, according to Mr. Tomes, has characterised all the cases of odontomes on record. I need hardly say how this sign would apply to a buried tooth; and knowing the vagrant disposition of the canine, which in this case was the missing tooth, it was hardly assuming too much to suppose that it might have undergone warty development, a condition described by Salter, and migrated to the position of the first molar. And, as I have already stated, the hard, slippery, nodulated surface, rendered in-

distinct by blood, could not readily be distinguished from the crown of a tooth.

Cysts, we know, may be developed in connection with either odontomes or buried teeth. Mr. Tomes supposes in the latter cases that when the enamel is completed, its outer surface becomes perfectly detached from the investing soft tissue, and that a small amount of transparent fluid not uncommonly collects in the interval so formed. This fact would fully explain how cystic tumours arise in connection with buried teeth. The little cyst which I noticed in connection with this osteoma may be explained by the fact that the small amount of irritation set up by the slow growth of the tumour, was not sufficient to set up suppuration, as when we find little cysts in connection with the roots of teeth where a more acute morbid process would have occasioned alveolar abscess.

The appearance of this little tumour, both to the naked eye and under the microscope, accords with the description given by Wedl and Heath, of osteomata. It has a broad base, polished ivory-like outer surface, and is traversed by vascular grooves both on its surface and internally. On section, the lacunæ are seen irregularly disposed round the vascular canals which penetrate the tumour for some distance ; nearer the periphery, however, some lacunæ may be seen arranged in parallel rows.

Wedl is of opinion that these growths, when they appear on the facial and lingual surfaces of the jaws, occur in connection with powerful jaws and strong sets of teeth, or with closely set or overlapping teeth, and that the act of mastication is conducted with such force as to produce displacement of the lower teeth towards the tongue, and the upper teeth towards the cheek.

The removal of neighbouring diseased roots frequently causes these growths to disappear. Mr. Stokes informed me of a case which was under his care at the Richmond Hospital, where a largish growth of this description disappeared, I think, in about six weeks after the removal of some roots near it. Should such a case come under my care again, this is the treatment I shall adopt before attempting the removal of the tumour by other means.

In conclusion, from the absence of the canine tooth, the discharge near the canine eminence, and the irritation about the left nostril, I fear this patient is likely to have some further trouble, probably in connection with the left antrum.

HOSPITAL REPORTS AND CASES IN PRACTICE.

Brief Notes of Cases treated with the Citrate of Cocaine.

BY MR. C. W. DUNN, Florence.

So much has been said and written of late about Cocaine that the subject may seem to some to have been pretty well exhausted. Still, we regard the following notes, sent us by Mr. Dunn, of Florence, as valuable, since he gives actual facts, whilst much that has been written has been of the usual "general impression" description. It is noticeable also that whilst the majority of those who have used this drug have obtained good results from it, some few have been unfortunate; this may possibly have been due to the nature of the preparation used, or to their mode of applying it. It seems to be thoroughly established that only concentrated preparations of cocaine are of any service in dental practice.

February 9th, 1885.—Lady—First right lower bicuspid had great aching. Dried cavity, applied Mr. Brunton's citrate of cocaine over nerve, covered it with cotton and mastic. Asked her to wait ten minutes. After that, found pain had ceased—was able to remove the softened bone and expose nerve, making it bleed. She showed very little signs of pain.

February 11th.—Dutch Gentleman—Second lower right molar. Complained of severe toothache. First dried cavity. Washed it with chloroform, applied on softened bone over nerve Mr. Brunton's Cocaine in its solid or paste state (quantity about the size of the head of an ordinary pin) waited seven minutes, and was then able to cut in upon the nerve with very little complaint of pain.

February 12th.—All pain had ceased from the time of the first application of Cocaine.

February 11th.—Young girl—17 or 18 years old. Exposed nerve in second left side bicuspid. Applied chloroform, then Mr. Brunton's Cocaine; left it for fifteen minutes. Was able to cut into nerve freely without great pain.

February 12th.—Lady—Exposed nerve, with violent aching in first right lower bicuspid. Applied chloroform, then Mr. Brunton's citrate of cocaine—waited ten minutes; was able then to cut into nerve canal. This lady, however, complained more of pain than any of the others. Still it was evident that the pain was very supportable.

February 11th.—Bolivian gentleman—First left lower molar, which had been filled in Paris. Apparently suffering from first stage of periostitis. Applied a 40 per cent. solution of Muriate of Cocaine, between gum and root of tooth.

February 12th.—Great diminution of pain.

February 13th.—Pain had almost ceased, had renewed the Cocaine each day.

Two Cases of Teeth Swallowing.

BOTH the following cases, reported in the *British Medical Journal* by Mr. Joseph Thompson, Consulting Surgeon to the Nottingham Dispensary, present features of interest. The first is remarkable for the length of time the teeth remained in the œsophagus without causing any very urgent symptoms, and, as is evident from his rapid recovery after their reappearance, without setting up any local inflammation. We recently published a report of a very similar case from an American source.

The second case is in strong contrast. Here again "a metal plate with two teeth attached" was swallowed, but it appears to have at once set up severe spasm and local irritation. The plate was removed "with considerable difficulty," some hæmorrhage followed, and the patient "was unable to swallow for some days." Happily no ill effects followed, but experience has shown that the use of any amount of force under such circumstances is attended with considerable risk. It is a pity that no details are given as to the size and shape of the respective plates, since these would probably have explained the marked difference in the symptoms and effects in the two cases.

We may add that the patient on whom œsophagotomy was lately performed by Mr. Lawson at the Middlesex Hospital, as noted in our last issue, has made a good recovery; but as she is still under observation, we defer the publication of our report for the present.

CASE I.—Henry P., aged 34, came to see me on October 27th, 1872, stating that he had swallowed a metal plate with two false teeth attached. He awoke about 4 A.M., and felt his throat sore. The pain went off, however, and he slept again; and, on rising and looking for his teeth, he could not find them. They were searched for while he went for a walk; and, on his return, he "thought he must have swallowed them," and came to me. He complained of much pain at

the upper part of the sternum ; the throat was not red or inflamed ; he had a difficulty, but could swallow fluids ; I could not feel anything with my finger, nor could I reach the teeth with curved forceps. An œsophageal bougie passed into the stomach without encountering any obstruction. Emetics of sulphate of zinc produced no satisfactory result. I advised him to keep quiet, and to take farinaceous diet. He continued to complain of his throat till about November 8th or 9th, when a tooth (which the patient was satisfied was his own) was found in a neighbour's yard, where the patient had been on October 26th. He now thought he could not have swallowed them, and I confess I thought so too, though I was convinced that he had a foreign body in his œsophagus, from the continuance of the dysphagia and localised pain. He went on till November 14th, when he was eating some "trotters," and got a bone in his throat ; and, in endeavouring to "hawk it up," the plate and teeth also made their appearance, having been in the œsophagus seventeen days. He had no further trouble beyond a little soreness of the throat when swallowing.

CASE II.—William D., aged 36, sent for me, at 12.30 A.M., on November 1st, 1880. His wife heard him making a peculiar noise, and awoke him. He could hardly breathe, and had swallowed two false front teeth, with a metal plate. I found him in great pain, making constant efforts to vomit, and in much anxiety. I could not feel the plate with my finger ; but, after a great deal of trouble, I succeeded in grasping it with long curved forceps, and, with considerable difficulty, dislodged it. A large quantity of bloody saliva followed the extraction, the flow of saliva soon ceased, and the pain subsided. The patient lost his voice entirely, and was unable to swallow for some days. I ordered him to suck ice freely, and this was followed by speedy relief, and he was soon about his usual avocations. He had no doubt drawn the teeth into his throat during a long inspiration, while lying on his back, having retired to rest while intoxicated.

REVIEWS AND NOTICES OF BOOKS.

THE TRANSACTIONS OF THE ODONTOLOGICAL SOCIETY
OF GREAT BRITAIN ; Vols. XV. and XVI. (New Series) ;
Nov., 1882, to June, 1884.

NOTHING would be easier for a captious critic than to write a merely fault-finding review of the Transactions of the Odontological Society, but at the same time nothing would be more unjust. In criticising volumes of this kind it is only fair to take into consideration the circumstances under which they are published. The main object of the monthly issue of these Transactions is to keep the members, and especially the country members,

au courant with all that takes place in the Society ; and this object, which is most admirably fulfilled, forms a valid, if not complete excuse, for the printing from time to time of much matter which cannot be considered altogether worthy of the name either of literature or of science.

Just two years have elapsed since our last notice of the Society's Proceedings, and it cannot be said that in this time deterioration in any respect is observable. As regards careful editing and admirable printing, these publications are a model for imitation, whilst the discussions are reported in such a way as give the pith of all that is said in a form which is at once brief and readable. There is certainly no dental society, and there are few other learned bodies, whose reports are turned out in so perfect a form.

The most important and valuable contribution in the volumes before us is undoubtedly the paper of Mr. A. Underwood on the production of Dental Caries. It is to be regretted that scant justice has been done to Mr. Underwood's work by the Society, the discussions being quite unworthy of the occasion. Such work as that carried out by Mr. Underwood requires for its prosecution not only first-rate knowledge and skill, but also a genuine love of science and capacity for self-sacrifice in the pursuit of truth. Mr. Underwood's researches are fully confirmatory of the conclusions as to the essential character of caries which have been formulated by the few first-class investigators, such as Messrs. Tomes and Prof. Wedl, who have examined the phenomena throughout, and there can be little doubt that, pursued on the lines adopted by Mr. Underwood of experiment and observation, the few remaining obscure points in our knowledge of caries will soon be cleared up.

No less than five out of the eleven papers produced since our last notice are the work of non-members of the Society, and we are glad to note that they are all of a higher value than some of those which we then felt compelled to criticise with some severity. On that occasion we were obliged to point out that some of the papers read and published had apparently been composed under the belief that anything would do for the Odontological Society ; that they were in fact really valueless, and only demonstrated their authors' ignorance of the fundamental facts of dental science. The knowledge that these papers were probably presented to the Society in response to invitation, no doubt restrained members

from criticising them as they deserved. It is to be hoped that in future the mistake will not be made of going out of the way to solicit contributions for the Society from any but really distinguished men, and that the Publication Committee of the Society will take care to reject contributions which are below a fair standard of merit. We imagine that there exists in the minds of the officials of the Society an impression that a formal paper of some sort for each meeting is a necessity, and that even a bad paper is better than none. We believe that this idea is at times a source of injury to the Society, and we should be glad if it could be overcome. Looking at the value of the Casual Communications brought forward from month to month, and seeing how little justice is, as a rule, done to them,—the cases and specimens being brought forward quickly one after another without any discussion being possible owing to lack of time,—there would appear to be no difficulty in occasionally holding a successful and lively meeting without the reading of a formal paper. The range of dental topics demanding discussion in carefully prepared papers is after all somewhat limited, and it can scarcely be expected that the Society should be able to draw forth a good paper for every one of its meetings.

The contributions of non-members which we have now to review are all valuable. Dr. Thorowgood's paper on "Therapeutic Agents for the promotion of Osteal Development" is an able exposition of the subject; but as the teeth are really dermal appendages, and not a portion of the osseous system, the topic is not so relevant to dental science as the author seems to have supposed. Mr. Bland Sutton's papers are thoroughly scientific; and although the study of Comparative Dental Anatomy and Pathology may seem to the superficial observer to be barren and unpractical, no one with an insight into their bearings on human anatomy and pathology can so regard them. It may be safely said that there is never established a single fact in any science germane to medicine which does not in some way tend to elucidate our knowledge of human diseases, and to promote practical improvement in their treatment.

Mr. Power's paper also on "the Relations between Dental Lesions and Diseases of the Eye" is in some respects admirable, bringing together as it does, for the first time, all the facts, illustrated by many interesting cases, bearing upon this subject. At the same time, one cannot help feeling that with regard to some of the

diseases cited as being sometimes caused by dental lesions the evidence is not altogether satisfactory, and the question *post hoc* or *propter hoc* forcibly suggests itself. If lesions of the teeth were the cause of diseases of the eye in any but exceptional circumstances, eye diseases would be much commoner even than they now are, and the connection between the two classes of affections would be more readily demonstrable.

We may say in conclusion, that whilst we are not blind to the faults of the Odontological Society, nor to the weak points of British Dental Surgery and its scientific representatives, we believe it may be asserted without boasting that our Odontological Society stands first amongst kindred societies in England or abroad, both as to the value of its contributions to science, and the standard of culture displayed by its members; and perhaps after all this is not very high praise. We trust that as time goes on, still further improvement will be manifest in both these respects; since this will be valuable not only for the progress of our art, but must also improve the status of dental surgery, by gaining the attention and respect of the scientific world. We should wish to see every topic of pure, as well as utilitarian science, having relation to the teeth, worked out by members of the Society. In this way more would be accomplished for the real advancement of our profession than could be brought about by any amount of legislative or State control, however necessary these may be, in their places, for our purposes.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

Odonto-Chirurgical Society of Scotland.

THE fourth ordinary meeting of the session 1884-85 was held on the 12th ult., at the Society's Rooms, 30, Chambers Street, Edinburgh, Mr. ANDREW WILSON, L.D.S., President, in the chair.

The PRESIDENT called upon the Secretary to open the discussion upon Mr. Stirling's paper on "The Treatment and Filling of the Nerve Canals in Teeth," read at the last meeting, by reading a communication upon the subject from Mr. WATSON, who was absent:—

"I think on the whole the treatment of such cases as recommended by Mr. Stirling is very thorough; at the same time I take exception to some of the things said in his paper. Thus, he says

he does not remove the pulp until four weeks after devitalising ; this I think entails a great liability to periodontal trouble. It is much better to remove the necrosed pulp at once, or in three or four days at most, after having dressed it with tannin and glycerine. Later on in the paper we are cautioned not to use too much force in syringing out with water the canals of teeth, as it might force septic material through their apices ; this I do not see the possibility of doing, unless the point of the syringe were fixed into the canal by means of cotton wool soaked in sandarach varnish. Mr. Stirling also recommends the application of hot fomentations to the face to promote suppuration. The old-fashioned treatment, a roasted fig split and applied to the labial and lingual surfaces of the gum over the affected tooth, is both safer and better, or the application of capsicum bags to the gum over the roots of the tooth. Mr. Stirling did not make mention of the use of sulphide of calcium, which has such a beneficial effect in promoting the absorption of inflammatory exudations, and in retarding their formation when used at a sufficiently early stage. He did not quite agree with Mr. Stirling in cutting away so much good tissue in the treatment of posterior approximal cavities, preferring the treatment advocated in his paper on alveolar abscess, read before the Society some two years ago, viz., filling loosely the pulp chamber with cotton wool, and then filling the posterior approximal cavity with amalgam or other stopping, and next day drilling a good large hole right through the centre of the crown of the tooth. By this means direct access could be obtained to the canals, making the treatment much easier and more thorough. Mr. Stirling condemned root filling with cotton wool and antiseptics. He (Mr. Watson) on the other hand upheld this treatment as preferable to the other, in respect that if anything went wrong with the tooth, the cotton wool root filling could be removed, whereas in the other case it was almost impossible to remove the cement ; at the same time he could say that he only filled the root, or roots, with cotton or silk, and antiseptics, the main portion of the pulp cavity being filled with cement."

Mr. MACGREGOR said he had one remark to make with reference to a mode of treating acute periostitis condemned by Mr. Stirling, but which he had occasionally found beneficial--namely, that of applying a leech to the gum. He would mention a case in point. A gentleman from the country lately called upon him, complaining of pain in a tooth stopped some six years ago, which then gave a

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of trouble. The usual remedies were applied at that time as was told what to do should the tooth continue to trouble. He came in this week, and as it had become so painful as to prevent him from getting any rest, he wished to have it extracted, unless relief could be obtained by any other means. As he could not well afford to lose the tooth, Mr. Macdonald thought he would see what benefit could be derived from the use of the rubber-plate down, so as to free it from pressure against its opponent in the opposite jaw, but this gave no relief. He then applied a cautery, although it itself drew but little blood from the gum, a little blood flowed afterwards from the wound. Before leaving to attend to his other patients the patient said that the tooth felt more comfortable than it had done since the attack, but if there were a return of the pain he would come and have the offender removed; and as it was now four days ago, it was to be presumed that the trouble was over.

CAMPBELL disapproved of the practice recommended by Mr. Stirling of leaving the devitalized pulp for four or five weeks before extracting the roots. He believed the nerve instruments, such as the rubber-plate made and used, would be likely to cause considerable pain, should there be vitality in any part of the nerve, and the use of instruments as Morey's nerve canal drills, which he (Mr. Campbell) made use of. Mr. Stirling's nerve instruments were of the type in which, being held in the hand, rotation was necessarily slow, and the Morey nerve drill (not for enlarging the canal) being held and rotated by the engine, did its work quickly, and if there were vitality about the apex, it was destroyed in an instant. In almost all cases, Mr. Campbell applied the rubber-dam, as he usually extracted the pulp and filled the tooth "right away." If the cavity of decay had been prepared and ready to have the pulp removed, he invariably saturated the cavity with sulphuric ether before using the Morey drill to clear the canal, in case there might be some vitality still remaining in the pulp. He believed sulphuric ether to be the best local anesthetic we had, except Cocaine, of which he could not yet make use. He also used ether with considerable benefit for obtund- ing the dentine, and recommended members to give it a

Campbell could not understand why Mr. Stirling so often extracted the teeth of patients who "had reached the shady side of life." Surely they were as valuable, and certainly

more amenable to treatment in periostitis, namely, by freeing the tooth from pressure by cutting the antagonising tooth. Mr. Campbell quite agreed with Mr. Macgregor; he also had often found great benefit from the application of a leech to the gums.

Mr. MACLEOD said that in connection with Mr. Stirling's remarks on the opening of canals by drilling, he had a bicuspid to show, which would illustrate the great danger which attended that operation at all times, and more so in teeth posterior to the incisors. This specimen was a left upper second bicuspid with a distal cavity. The dentist had in this case drilled right through the cementum and the alveolar septum separating the two bicuspid, and judging from the quantity of silk thread which was found protruding from the drill hole, must have been impressed with the conviction that he was getting this canal thoroughly filled. In the case of bicuspid, it was frequently impossible to enlarge the canals by drilling, owing to the thinness of the wall at the centre of the approximo-distal section of this hour-glass, or figure-eight shaped canal.

Mr. E. CORMACK said that he did not think it advantageous to leave a pulp for a month after being treated with arsenic, because when for any reason he had done so, he had as a rule found that the root canals were filled with a sanious fluid, which was only got rid of with great difficulty. He considered that few pulps were removable within forty-eight hours, except with pain more or less acute. Dr. Walker's treatment of following up the application of arsenic with carbolic and tannic acids, was a decided improvement on the old plan, but in his (Mr. Cormack's) hands, the removal could not be effected so quickly and painlessly as Dr. Walker would lead us to expect. He agreed with Mr. Stirling that the opening up of canals with drills or broaches was not a course to be commended; in fact he was inclined to believe much harm might result from this treatment. Mr. Macleod had just handed round a bicuspid through the root of which a drill had been passed; he (Mr. Cormack), had extracted an upper molar tooth, in which three roots were perforated in a similar manner. In order to freely expose a diseased pulp, he was in the habit of applying to the dead bone covering it a paste (lately recommended by an American dentist in the *Cosmos*), consisting of carbolized resin and caustic potash, to lessen the pain of piercing the diseased pulp; this at first was apt to cause a sharp twinge of pain, which, however, soon passed off, and allowed the operator to gently scrape the dentine away till

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exposed. Owing to the irritating nature of the application, the parts surrounding must be protected by the coffer-dam. If there is any gangrenous matter lurking about the canals, a solution of corrosive sublimate (1-1000) applied without force, followed by loosely rolled pellets of cotton wool, with tannic acids, were often sufficient to bring about a permanent filling, cotton wool, with white stopping in its meshes, was at once easy and effective. Mr. Corbridge added by saying that he did not think that Mr. Stirling's objection to the extraction of a tooth affected by acute periostitis, generally shared by the members of the profession; and in part, he thought that the recommendation to apply a plaster over the cheek might be more likely to produce graver results than that following the pointing of an alveolar abscess.

In hospital practice it was not uncommon to see a complication caused by a too rigid adherence to this pro-

SECRETARY (Mr. Amoores) said that he thought that, as he had heard on this and other occasions from different sources, the pain caused by the removal of a nerve, even after it was treated with arsenic, was often underrated. Truly, it was not so, but its intensity varied immensely in different individuals according to their temperament and susceptibility to pain. He took himself as an average example, in one molar the nerve had been extracted from the three roots after a week had elapsed and to elapse subsequently to the application of the arsenic. In another upper molar the same had been effected after three applications of arsenic, extending over a month. Both were painful; in the first instance, as each nerve was divided, the pain could be felt flashing up the side of the face to the eye; in the second it was less acute. He had often heard by operators that "the way they did it" never, or scarcely caused pain, at all events, none to speak of; but he inclined to think that in these instances the suffering was underrated, that is, if the operation had been properly performed, and the nerve divided at the apex of the tooth. It was his experience that there was always more or less pain, at times, but slight. He had not given Dr. Walker's method a trial perhaps, but so far as his experiences went, they were not unlike those of Mr. E. A. Cormack; the theory was good, but the results were disappointing. He approved of what had

been said condemning the practice of enlarging the pulp canals with burrs, flexible or otherwise; it was a risky practice, and in his opinion, unnecessary, the canals could be filled quite well without it. He had formerly been in the habit of filling the roots with antisepticised wool, but had for some time past impregnated this with thin oxychloride, and he thought with better results; and to judge from those obtained by others, he was strongly in favour of some non-absorbent material, and he knew of none better than Guillois's Cement, as recommended by Mr. Stirling.

Mr. MACKINTOSH, in referring to what had been said by Mr. Amoores, called attention to the February number of the *Dental Record*, in which it was stated that a few drops of hydrochlorate of cocaine in water, after being allowed to remain for a few minutes in the cavity of a tooth upon an exposed pulp, made it insensible, and allowed its removal without pain. In another case 8 drops of a solution of similar strength, when injected beneath the buccal mucous membrane in close proximity to the mental foramen, caused anæsthesia of the lower lip, molar, canine, and incisor teeth, and partial anæsthesia of the tongue on that side.

Mr. REES PRICE decidedly could not agree with the author of the paper with respect to the non-extraction of a tooth in a state of acute periostitis, with impending suppuration. He had found marked relief in giving internally sulphide of calcium in cases of periostitis or tendency to alveolar abscess. He thought Mr. Stirling was too ready to cut away the buccal walls of teeth to get at the pulp cavity; it was more advisable to open up from the crown. Nor could he agree with Mr. Stirling as to the necessity for leaving a pulp cavity intact for a month after the arsenic had done its work. Some pulps were difficult to extirpate even with two or three applications of arsenic, but if the pulp had been acted upon he found, as a rule, it could be removed in 48 hours, and the tooth filled permanently, with little or no inconvenience to the patient. Mr. Watson had said that leaving arsenic upon an exposed pulp for a long time was likely to cause periostitis. He must dissent from this statement; for not unfrequently, from necessity, he had applied arsenic to exposed pulps, and finishing with a temporary stopping, he had not seen the patient for a long time. Mr. Coleman had suggested using arsenic as a dressing in dead teeth, under certain circumstances. He had tried this on many teeth—especially when it was not possible for the patient to give the time for prolonged treatment, and with satisfactory results.

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RESIDENT closed the discussion by remarking that the had been so thoroughly wrought out by the previous that there was nothing left to say. He quite agreed with gregor as to the very great value of leeching in acute s. As regarded the antiseptic powers of arsenious acid, ected having many years ago (when its use dentally was nning) seen it stated in an American journal that pulps d by its means could never become putrid.

RES PRICE showed a model of the upper jaw of a boy aged e two central incisors were $\frac{1}{2}$ an inch in breadth. The ere in position, and the canines were coming through. ie central incisors was chipped at the cutting edge, where y thin. It also showed a deep furrow on the lingual sur- ng the semblance of a union of two teeth.

RESIDENT exhibited the skull of a very young camel show- temporary dentition. The members, he said, would hat neither upper nor under canines were caniniform, and ower one formed quite as much a continuance of the in- p as did the corresponding tooth in the permanent series *vide*.

ACLEOD exhibited a lower incisor, to which was attached ge deposit of tartar.

National Dental Hospital.

Annual Meeting of the Governors of this institution was ie hospital on the 23rd ult., Viscount Enfield, President, air.

ommittee of Management submitted a satisfactory report. irts during the year had amounted to £709 18s. 9d., two- which had been contributed by the patients; the expen- d been £603 5s. 8d., leaving a small balance in hand. cription dances held during the winter had passed off essfully, but the gain to the institution had been small.

port of the Medical Committee stated that the number its had again increased during the past year; 19,281 ad been attended, and 33,152 operations had been per-

There had therefore been an increase of 1,438 patients 5 operations over the totals of the previous year.

rge increase in the number of operations under nitrous

oxide had rendered necessary the appointment of three additional anæsthetists, and the Committee were most anxious to enlarge the waiting and extracting rooms, which were often inconveniently crowded, as soon as the state of the funds would permit.

It had been decided to offer one free scholarship annually, tenable for two years, for nomination by the Committee of Management of the Dental Benevolent Fund.

The reports were received and adopted, the proceedings being of a formal character.

The Victoria Dental Hospital, Manchester.

THE annual meeting of the Victoria Dental Hospital was held on February the 16th, in one of the Committee-rooms of the Manchester Town Hall, Lord EGERTON of TATTON, one of the patrons, presiding. The first annual report, which was presented by Mr. H. L. Knoop, the Hon. Secretary, stated that since March last, when the arrangements were completed to take over the assets and liabilities of the Manchester Dental Hospital, the hospital had met with considerable and continued success, and the poor were availing themselves more and more of the benefits it offered. The arrangements which had been made for keeping the hospital open three evenings in the week had been much appreciated, the average evening attendance of patients having greatly exceeded that of the morning. In November last the hospital was formally recognised by the Royal College of Surgeons of England. The Committee reported with regret that the annual subscriptions did not at present amount to quite £100, which sum was insufficient for carrying on the work in such a manner as they would desire and as the character and objects of the charity seemed to require. They therefore earnestly appealed to the generosity of the public for its support and countenance. The report of the Dental Committee, stated that from the opening of the hospital to the 31st December—a period of about ten months—the number of patients admitted had been 2,720. The treasurer's statement showed that there had been received in donations £325, and in annual subscriptions £99; and smaller items brought up the total receipts to £442. After the expenses of formation and establishment of the hospital, &c., there remained a balance in the banker's hands of £226. The Chairman, in moving the adoption of the reports and financial statement,

said the institution appeared to have encountered some difficulties at the outset, but these were now surmounted, and it was unnecessary that he should refer to them. The hospital was in a thoroughly satisfactory condition, and appeared to be appreciated by those for whom it was intended—viz., the poor. The opening of the institution in the evening no doubt largely increased the work of the dental staff, and it was gratifying to find that there was such a noble spirit of self-sacrifice amongst the members of the dental profession generally on behalf of the deserving poor. He had no doubt as the institution became better known it would be a still greater tax upon their time and attention. He found that during the last six weeks above 700 persons had been treated at the hospital. It was satisfactory to find that the institution had been formally recognised by the Royal College of Surgeons, inasmuch as it would afford to the general public a sufficient guarantee of its position as a gratuitous hospital. Mr. F. A. Huet seconded the resolution, which was passed.

The Chairman moved that the Mayors of Manchester and Salford be appointed vice-presidents of the hospital. The motion was seconded by Mr. Reuben Spencer, and adopted. Upon the motion of Mr. F. W. Travers, seconded by Mr. W. H. Wilson, Messrs. W. A. Coppinger, A. Crewdson, and Reuben Spencer were appointed trustees of the hospital. The Committee were re-appointed on the motion of Mr. H. Campion, seconded by Mr. T. Tanner. The Rev. Father Anderdon proposed, and Mr. Kissel seconded a vote of thanks to the governors, members of the Committee of Management, medical staff, and hon. secretary, treasurer, and auditor, for their services during the past year, which was passed.

Mr. Coppinger, in replying, said the Committee desired to receive at least £50 a year more in annual subscriptions, bringing up the total to £150 a year, in order to meet the requirements of the hospital. He felt certain that fact only needed to be made known in order to ensure a generous response.

The meeting concluded with a vote of thanks to the Chairman, proposed by Dr. Shaw, and seconded by Mr. Crewdson.

MINOR NOTICES AND CRITICAL ABSTRACTS.

The Use of the Key.*

By THOMAS FILLEBROWN, M.D., D.M.D.

PROFESSOR OF OPERATIVE DENTISTRY IN HARVARD UNIVERSITY.

UNTIL about 1830 the key was the main reliance for extracting teeth. At that time the forceps had been so well perfected that it very soon almost entirely superseded all other instruments for this purpose. Since that time the key as an extracting instrument has been held in disfavour by the profession and by the public as well. Almost every writer on extracting teeth has taken pains to pointedly and emphatically condemn it, and to warn his readers against the use of it. Desirabode calls it a "dangerous implement, fit only to mask the unskilfulness of the operator." Robertson names it "an instrument of torture and of dread. The key in any form is a powerful instrument, but at the best a dangerous and barbarous one." Taft calls it "a very imperfect instrument. With it the liability to accident is greater than with any other instrument. The force is applied at too great an angle with the axis of the tooth, and hence in numerous instances it is broken off. The bolster of the key rests on the gum, which it always bruises and frequently lacerates in a cruel manner."

This is a fearful indictment, and if true eternal obloquy should be its fate. But it is not true, and comes from an entire misapprehension of the capabilities of the instrument, and of judging it by results obtained from application to teeth for which it is entirely unsuited, and charging the instrument as guilty of all the ill results of such misuse, and also considering it responsible for all the injury done by it in the hands of unskilled persons, professional and non-professional. Such treatment is unreasonable and unfair, and has prevented its invaluable qualities being appreciated.

A careful observation and study of the instrument will discover its limitations, remove the haze of misapprehension which has so long surrounded it, and show the groundlessness of the abuse it has suffered. There have been exceptions to this rule of condemnation, and with some the key has found favour, and held its place among the extracting instruments of a number of our most

* Read before the American Academy of Dental Science, Boston, Mass., January 7, 1885.

successful operators. When I commenced practice I as fully as any one believed the key was an instrument fit only to have a place in a museum, to be viewed as a relic of a barbarous age, and the fact that a tooth could be easily and successfully extracted with it was as far from my apprehension as a conception of the telephone. But full as I was of prejudice as well as conceit, I was amenable to the logic of a demonstration, and after witnessing a few operations by my partner, Dr. D. B. Strout, with whom I was associated for several years, I was entirely converted, and have never had a symptom of backsliding. Nearly forty years ago Dr. Strout was a pupil with Dr. J. A. Young, of Portland, Me., in whose hands the key was a great success, and by him was instructed in its use. Dr. Young in turn was taught by a dentist in Baltimore, with whom he studied years before. Thus, it will be seen that I am following a direct unbroken line of practice that reaches back to the time when the forceps was scarcely known, and the key was the instrument in general use. So I may reasonably consider myself in the line of true "apostolic succession." In the hands of those operators the use of the key was confined mostly to the conditions and cases which I describe.

The key is suited to the extraction of the eight bicuspid and roots, and will do it more readily, easily, quickly, and successfully than any other instrument ever invented. It is equally applicable to a single root of an under molar, where the buccal portion is firm, even if it does not protrude above the gum or alveolar border; and in cases where the lingual side is much broken down, its superiority over the forceps is particularly manifest, as well as on the bicuspid. I consider it an entirely unfit instrument with which to extract either the incisors or cuspids. While some operators extract molars with it successfully, in my hands it is less desirable for them than well-constructed forceps, except occasionally for an inferior third molar, which it will extract with great ease when the conditions are favourable. I have never met an operator who could use the key intelligently, and with a fair degree of skill, who failed to find it invaluable.

The construction of the instrument is of importance. Poor keys are as useless as poorly constructed forceps, and proportionally plentiful. I prefer the bent shaft, as it is more readily kept clear of the front teeth. The fulcrum should be neither too large nor too small. Three-fourths of an inch in length from centre of shaft to extremity of face, and one-half an inch in thickness, has

in my hands proved desirable. The hook must be long enough and well curved, so as not to be thrown off by contact with the crown of the tooth when force is applied by turning the shaft to extract it. With the fulcrum and hook properly formed, and their relations properly established and skilfully used, the key is the least likely of any instrument in use to lose its hold or to break the tooth. As usually made, the hooks have two points for bicuspid and three for molars. It was such as these I was taught to use. But by a peculiar placing of the instrument, not easily described, all the work was done with one point of the hook, the others being carried free from the gum and tooth, and thus ignored. Some fourteen years ago I learned of some one, I think, in Philadelphia using a hook with one sharp point only. I immediately made one by grinding off the two outer points from a three-pointed hook, and making the remaining point sharp. This form proved a great improvement, and I consider it perfect, and am now using it.

When used, the bulb of the key should be covered with a pad. The use of it without is likely to bruise the gum. A permanent pad of any kind I dislike, as it becomes foul in spite of care. A little wet cotton, wound around and tied with a small string, answers an excellent purpose. If one is skilled in its use, no tying will be needed. The old-fashioned, untwisted lamp-wicking, or a small napkin, answers well. When padded, place the fulcrum on the inside of the jaw, opposite the tooth to be extracted, and rest it on the edge of the gum, well up on the neck of the tooth. If placed low down the lateral force is increased and exerted on the alveolus instead of the tooth, and fracture is the result. If the tooth be strong, place the point of the hook on the neck of the outside of the tooth, pressing down the gum a little, but not sufficient to wound it. When adjusted, turn the instrument inward, gently, until you feel that the hook is fixed, when a quick, resolute turn of the hand will extract the tooth instantly, and in almost every case to the great surprise of the patient that it hurt so little.

The "putting on" of the instrument gives no pain whatever. The pain is confined simply to the separation of the connections of the tooth with the walls of the socket. There is no painful pushing or crushing of the gum, as with the forceps. If the crown be gone, and the root is fractured or decayed below the margin of the gum, the fulcrum must be put a little further on the

jaw, and the hook placed well down on the gum, even one-third of an inch from the margin. Then apply force by turning, as before, and the hook will penetrate the gum and alveolar wall, and catch the root, as in the former case. It will make a clean cut through the membranes to the edge without lacerating the one or fracturing the other, and remove the offending root with the most surprising ease and facility. The fulcrum, in any case of proper use, will not bruise the gum even enough to cause ecchymosis. No one who has not observed the operation of the instrument under these circumstances can at all appreciate the excellence of its performance, and, I think, no one who has witnessed it and mastered its use would fail to be enamoured of it or ever be without a key in his operating case.

The great adaptability of the instrument is shown by the variety of ways in which it is used. While a pad is generally recommended, many do not use it. Dr. Mead, of Providence, uses a key with a large, rounded fulcrum, without any pad whatever, and causes no bruising of the gum. He finds the key particularly applicable to the molars, and seldom uses it for bicuspid. He always places the fulcrum on the inside, and turns the tooth inward. Dr. Preston, of Boston, has used the key successfully for more than forty years, and thinks it invaluable. He applies it to both molars and bicuspid, and occasionally to under incisors. He uses a very large pad, made by winding a napkin around the bulb, and always places the fulcrum on the outside of the jaw, turning the tooth outward, and often, when applying the key to third molars, arranges the hook by a screw on the shaft beyond the fulcrum so as to reach back farther than the fulcrum can be placed. He thinks the injuries done by the key have been caused by placing the fulcrum on the inside, and allowing it to slip down too low on the gum,—which danger is avoided by placing the fulcrum outside.

As a *dernier ressort*, when the alveolus must be cut through, perhaps, on one or both sides nearly or quite to the apex of the root, and the pain inflicted is no longer in question, recourse must be had to the forceps, for such cases are beyond the capabilities of the key, as also are cases of much crowded or misplaced teeth.

Much philosophy has been expended to show that the angle at which the force is applied is such as to endanger the tooth and alveolar walls, and that an excessive amount of force is needed to perform the operation. My own experience is so opposite to this,

that it sounds to me like the reasoning of a theorist who has had no practical knowledge of the subject under consideration, but who has taken the results of unskilful misapplication and the bungling mistakes of blacksmiths for proper use, and thus, in some sense, legitimately arrived at such mistaken conclusions. The natural inclination inward of the bicuspid, the taper of the root toward the apex, the extreme thinness of the outer wall of bone, and the substantial thickness of the inner plate, render the direction of the force exerted by the key extremely favorable. The major part is in a direct line with the axis of the tooth. The first application is perhaps a little lateral in direction, as is required for the surest and easiest starting of the tooth from the socket. We are taught, when using forceps, to thoroughly loosen the tooth and break up its connection with the jaw by lateral force, before attempting to remove it from the socket. This is good practice, and it is equally good for the key. Continued use for more than twenty years has demonstrated to me that the direction in which the force is applied in the extraction of bicuspid is especially favorable and effective, and the amount of strength required on the part of the operator to perform the operation is surprisingly less than is needed for the use of the forceps in similar cases.

A spicula root forceps would not be expected to extract a molar as successfully as one well constructed purposely for it. Neither should the key be condemned for not performing perfectly well the work of another instrument. I believe the key to be a most excellent and perfect instrument for its work, and I ask a reconsideration of its merits by scientific operators throughout the profession.
—*Dental Cosmos*.

The Relation of the Alveolar Form of Cleft Palate to the Incisor Teeth and the Intermaxillary Bones.*

BY PROFESSOR W. TURNER, M.B., F.R.S.

IN an essay on the intermaxillary bone published in 1786, the illustrious Goethe, by the recognition of a suture on the palatal aspect of the upper jaw, extending from the incisive foramen to the interval between the canine and lateral incisor tooth, and of a prolongation of the same suture into the naso-palatine canal,

* Communicated to the Royal Society of Edinburgh, December, 15th, 1884, and published in the *Journal of Anatomy and Physiology*, January 1885.

determined the presence of this bone on each side of the human upper jaw. In a subsequent essay, published in 1819, he cited other facts in support of this position, and stated that in hare-lip the incisive or intermaxillary bone is separated from the superior maxilla, and the suture between the two bones remains open. Since that time it has been the current doctrine that the lateral cleft in the alveolar border of the jaw, which so frequently accompanies a hare-lip, marks the separation between the intermaxillary and superior maxillary elements of the human upper jaw.

In an essay published in 1879,* Dr. Paul Albrecht traversed this conclusion of Goethe's. From the examination of the skull of a young horse, with a double hare-lip and alveolar cleft, of the skulls of two calves with lateral alveolar clefts, and of similar malformations in the human upper jaw, he came to the conclusion that the cleft was not between the intermaxilla and superior maxilla, but was intra-incisive in position, and co-existed with the usual suture of articulation between the superior maxilla (exognathion) and the intermaxilla. He considered that the explanation of this condition was to be looked for in the presence during earlier stages of development of two intermaxillary bones on each side, a mesial (endognathion) and a lateral (mesognathion), and that the alveolar cleft was an open state of the suture (endomesognathic suture) which ought to have connected them together. In support of this position he refers to observations by Albinus, Autenrieth, J. F. Meckel, Leuckart and himself on the existence of the remains of a suture in many hard palates, situated in the area between the mesial palatal suture and the maxillo-intermaxillary (meso-exognathic) suture.

Since the publication of this essay Dr. Albrecht has written a number of papers on the same subject, and has accumulated many additional observations in support of his views.† As he

* Die morphologische Bedeutung der seitlichen Kieferspalt und die wahrscheinliche Existenz von vier Zwischenkiefern bei der Säugethiere, *Zoologischer Anzeiger*, 1879, p. 207.

† Sur les 4 os intermaxillaires, &c. ; Communication faite à la Soc. d'Anthropologie de Bruxelles, Brussels, 1883 ; sur la Fente maxillaire et les 4 os intermaxillaires de l'Ornithorynque, Communication faite à la Soc. d'Anatomie Pathologique de Bruxelles, 1883 ; Erwiderung auf Prof. H. v. Meyer, *Deutsche Zeitsche für Chirurgie*, 1884 ; Die morphologische Bedeutung der Kiefer, Lippen- und Gesichtspalten, *Langenbeck's Archiv*, Bd. xxi. Hef. 2 ; under the

has done me the favour of presenting me with copies of these papers, I have been able to make myself acquainted with his opinions on this interesting topic, and have tested his statements by an examination of such material as I have been able to obtain access to.

I propose in this communication to give an account of some observations which I have made on this interesting branch of teratological anatomy. My observations fall under the following heads :—

A. The examination of an extensive series of casts of the roof of the mouth in cases of cleft palate, where the cleft had extended forwards through the alveolar border of the jaw, either on one or on both sides. For the opportunity of examining these casts, and for information regarding the cases, I have to express my obligations to my colleagues, Professors Annandale and Chiene ; to Dr. John Smith, President of the Royal College of Surgeons, Edinburgh ; Dr. Joseph Bell, Senior Surgeon, Edinburgh Royal Infirmary ; W. Bowman Macleod, Esq., L.D.S., Dean of the Dental School ; and Andrew Wilson, Esq., L.D.S., Lecturer on Dental Anatomy, Edinburgh.

B. The examination of a large number of human hard palates in the Anatomical Museum of the University, where there was no cleft, with the view of ascertaining if any sign was visible to indicate the division of the intermaxillary region of the upper jaw into a mesial and a lateral portion.

A. Casts of the Roof of the Mouth in Alveolar Cleft Palate.—In the absence of preparations of cleft palate, either in the dry bones or in spirit-preserved specimens, carefully prepared casts of the roof of the mouth are of service, as they show not only the position and direction of the cleft, but the number, arrangement, and forms of the teeth, and the relation which the alveolar cleft has to the teeth in the incisor and canine series. They do not, of course, enable one to state with absolute precision the particular part of the jaw in which the alveolar fissure is situated, and still less do they permit one to determine if a maxillo-intermaxillary suture coexists with the alveolar cleft. But, as in the living mouth itself, the relations of the teeth to the cleft can be accurately de-

same title in *Centralblatt für Chirurgie*, 1844, No. 23 ; Ueber die Zahl der Zähne bei den Hasenscharten Kieferspalt in *Centralblatt für Chirurgie*, 1884, No. 32.

ed ; also, in so far as the development of the incisor teeth is associated with the position of the intermaxillary elements of the human upper jaw, an estimate can be formed from them of the position and extent of the intermaxillary bones, and of their relations to the superior maxilla.

In the course of the description of the casts I shall have to state the presence or absence of a tooth in the dentary series in the interval between the canine tooth and the alveolar cleft. I avoid mixing theoretical considerations with the description, and I call this tooth *precanine*, from its position,—a convenient term which has also been employed by Dr. Albrecht.

Left Alveolar and Mesial Palatal Cleft.—Cast from the specimen of Professor Annandale. The patient was æt. 15, and operated on in 1864.* On each side the 1st and 2nd permanent molars, both the bicuspid and the permanent canines were erupted. Between the right canine and the cleft the right central incisor and the two central incisors were in position. Between the left canine and the cleft was situated the crown of a well grown *precanine* tooth, which bounded the cleft on its outer

Left Alveolar and Mesial Palatal Cleft.—Cast from the specimen of Professor Annandale. Adult. On each side all the permanent molars, the bicuspid, and the permanent canine were erupted. Between the right canine and the cleft were two incisor teeth, which were apparently the central incisors. On the left, *i.e.*, side, of the cleft, but on the palatal side of the permanent canine, was the crown of a well grown tooth, which obviously bounded the left *precanine*, although it was displaced out of its normal order in the dentary arcade, and consequently was not so close to the cleft as in the preceding specimen.

Left Alveolar and Mesial Palatal Cleft.—Cast from the specimen of Dr. John Smith. Adult. On each side all the true permanent teeth were erupted, on the right side both bicuspid, on the left side the bicuspid, also the permanent canine on each side. Between the right canine and the cleft were four incisors, a left and right central, and two right laterals. It is possible that the lateral immediately in front of the right canine was a retained milk tooth. A small *precanine* was situated immediately in front of the left canine and close to the cleft.

* Operation described by Mr. Annandale in *Edin. Med. Jour.*, Jan. 1865.

4. *Left Alveolar and Mesial Palatal Cleft*.—Cast from the museum of Mr. Bowman Macleod, L.D.S. Adult. On each side all the true molars, bicuspid, and the permanent canine were erupted. Three incisor teeth had been situated between the right canine and the cleft, but the right lateral incisor had been extracted. The crown of a small *precanine*, which projected beyond the gum like a little tubercle, was situated immediately in front of the left canine and close to the cleft.

5. *Left Alveolar and Mesial Palatal Cleft*. — Cast in the museum of the Dental Hospital and School, London.* On each side the 1st and 2nd true molars, both bicuspid, and the permanent canine were in place. Between the right canine and the cleft were the right lateral and both central incisors, and the left central incisor projected almost horizontally forwards. The small crown of a left *precanine* occupied the interval between the left canine and the cleft, and it projected almost horizontally forwards and inwards about half way across the cleft.

6. *Left Alveolar and Mesial Palatal Cleft*.—Cast from the museum of Professor Annandale. Adult. All the true molars, the bicuspid, and both the canines were erupted. Between the right canine and the cleft were two incisor teeth, and as there was a diastema between the cleft and the incisor on its mesial side, it is possible that another incisor may have been extracted. On the palatal side of the left canine was the crown of a well-developed tooth, which projected vertically and parallel to the canine, and which, from its size, was obviously not a milk tooth. It was close to the alveolar cleft, but the crown of the canine, from being a little bigger, overlapped obliquely this tooth, so as to approach closer to the cleft. I regard this tooth as a *precanine*, displaced from its proper order in the dentary arcade.

7. *Left Alveolar and Mesial Palatal Cleft*.—Cast in the museum of the Dental Hospital, London. Transitional dentition; first permanent molar, all the milk molars and canines were erupted. Two permanent incisors were cutting the gum between the right canine and the cleft. A milk *precanine* was situated between the left milk canine and the cleft, and close to the cleft.

8. *Left Alveolar and Mesial Palatal Cleft*.—Cast from the

* For the opportunity of examining the copy of the cast of this and the other casts in the Museum of the London Dental School, described in this communication, I am indebted to W. Bowman Macleod, Esq., L.D.S.

museum of Professor Annandale. Permanent dentition. There were apparently four incisors between the right canine and the cleft; but the cast wanted definition in that region. The left canine came up to the cleft, and no *precanine* was interposed.

9. *Right Alveolar and Mesial Palatal Cleft*.—Cast in the museum of Professor Chiene. Child. First permanent molar and 1st bicuspid erupted on each side; 2nd milk molar in place, also the milk canines. The two milk central incisors had been shed, and the permanent incisors were appearing in their place, but the left lateral milk incisor was in front of the corresponding canine. Between the right milk canine and the cleft was the small crown of a milk *precanine*, which projected close up to the cleft.

10. *Right Alveolar and Mesial Palatal Cleft*.—Cast in the museum of Mr. Bowman Macleod, L.D.S. Youth, æt. 16. On each side the 1st and 2nd permanent molars, both bicuspid and the permanent canines were erupted. Three permanent incisors had been present in the interval between the left canine and the cleft, but the right central incisor had been extracted before the cast was taken. Immediately to the right side of, *i.e.*, external to the cleft, was a tooth which obviously represented a right *precanine*, though it was displaced from its proper order in the dentary arcade, and had erupted on the palatal side of the right canine.

11. *Right Alveolar and Mesial Palatal Cleft*.—Cast in the museum of Mr. Andrew Wilson, L.D.S. Permanent dentition. The molars, bicuspid, and canines on each side were erupted. Between the left canine and the cleft were the two central incisors and the left lateral incisor. Between the right canine and the cleft was a *precanine*, the crown of which was small, and overlapped the cleft. It was somewhat displaced from its proper order in the dentary arcade, and was in part situated on the palatal side of the right canine.

12. *Right Alveolar and Mesial Palatal Cleft*.—Cast in the museum of Professor Annandale. Transitional dentition. No *precanine* was situated in the interval between the right canine and the cleft.

13. *Double Alveolar and Mesial Palatal Cleft*.—This very interesting case occurred in the practice of Dr. Joseph Bell, who removed the projecting intermaxillaries with their incisor teeth. Before this operation, a cast of the roof of the mouth was taken

by Mr. A. Wilson, L.D.S., who has kindly lent me both the cast and intermaxillary bones for examination. The patient was about 17 years of age, and presented on each side a deep alveolar cleft which joined posteriorly a mesial palatal cleft. The projecting, isolated, and mesially-placed intermaxillaries were fused together into a single bone, and contained four incisor teeth, the two central of which were directed vertically and with their crowns honey-combed; whilst the two lateral projected almost horizontally outwards, each at its own side. Behind the cleft on each side were, from behind forwards, the 1st and 2nd permanent molars, though the crown of the 1st was decayed, two bicuspid and the permanent canine, but on the left side the temporary canine was still present in the dentary arcade between the permanent canine and 1st bicuspid. On each side, also, a small *precanine* tooth projected about 4 mm. beyond the gum in the interval between the permanent canine and the alveolar cleft, and close to the outer side of the cleft.

14. *Double Alveolar and Mesial Palatal Cleft*.—Cast from the museum of Mr. Bowman Macleod, L.D.S. The intermaxillary bones had been removed during early infancy. The cast was taken when the permanent molars, bicuspid, and canines had erupted. No *precanine* tooth was present on either side, and, as the intermaxillaries had been removed, there were no representatives of incisor teeth.

15. *Double Alveolar and Mesial Palatal Cleft*.—Cast in the museum of the Dental Hospital, London. The conjoined and isolated intermaxillaries showed no evidence of incisor teeth. The first permanent molar on each side, both the milk molars and milk canine, were erupted. On each side a distinct *precanine* tooth was situated between the milk canine and the cleft.

(*To be concluded.*)

The Size of the Teeth as a Character of Race.

BY PROFESSOR W. H. FLOWER, F.R.S.

It has long been known that the teeth of certain races, notably those of the Australians, are of superior size, both actually and in proportion to the general stature of the individual, than are those of other races. It is, however, very desirable that some more exact information on this subject should be obtained, and if possible more numerical relations established, by which the

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variation in the size of these organs in different races mulated and compared.

purpose I have availed myself of the very large and as of skulls now contained in the Museum of the Royal Surgeons, including those of the Barnard-Davis col-

d having measured the greater number of them, beg to results to the Anthropological Institute. Even in so llection, numbering over 3,000 specimens, those which de use of for this purpose are less numerous than might ed at first, in consequence of the numbers—in fact, the rity being defective in their teeth, either from decay or ; life, or from their having fallen from the skull after omplete sets are extremely rare. The incisors and wing to their simple mode of implantation, are most lost ; but the molar series, if complete and sound at of death, are in a great many cases preserved. Suf- nbers for deducing any general observations could, in be obtained from the latter, and those of the upper jaws

been used, because they are more numerous, so many ting the mandible, and because there is no need to oth, as the general size of the one is necessarily related ncides with that of the other set. I have therefore taken f the size of the teeth the length in a straight line (as by the sliding compasses) of the crowns of the five teeth er molar series *in situ* between the anterior surface of remolar and the posterior surface of the third molar, th is designated hereafter as the *dental length* (d).

bsolute length is, however, hardly sufficient for our comparing races ; for the size of the individual, and of m generally, should be taken into account, as smaller individuals might naturally be supposed to have smaller is therefore necessary to find some standard of length as the general size of the cranium with which to compare length. For this purpose I have selected the cranio-, or basio-nasal length (BN), the distance between the so-frontal suture) and basion (middle of anterior edge of n magnum), as being on the whole the most constant nient indication of general size. Even in this measure- e is unfortunately an element of variability introduced nt of the actual size of the skull by the inclusion of the e nasal chamber, and the thickness of the lower border

of the frontal bone ; but, putting aside occasional individual variations, this is one of the most constant dimensions of the cranium, and if not safe to apply to a single skull, will, if the averages of a sufficient number of specimens are taken, afford a good standard of comparison.

In the average male skull the length is very nearly 100 millimeters ; in the female skull 95. Between the basio-nasal length and the dental length an index can be established on the formula

$$\frac{d \times 100}{BN} = \text{the dental index.}$$

The average dental indices of the various races measured appear to vary between 40 and 48, although individuals may be found which either fall below or exceed these numbers. The general average may be taken at 43. Following the convenient method of division adopted with other indices, the dental indices may be divided into three series, called respectively :

- Microdont ... below 42.
- Mesodont ... between 42 and 44.
- Megadont ... above 44.

I may begin, for the sake of comparison, with a study of this character in the anthropoid apes, the results of which are shown in the following table. It will be observed that the dental index is, in all cases, greater in the female than in the male, in consequence of the molar teeth of the former sex more nearly retaining their characteristic size, while the general size of the cranium, as indicated by the basio-nasal length, is diminished. This is very marked in the gorilla, in which animal the disparity between the sizes of the sexes is very great, while in the chimpanzee, the male and female of which scarcely differ, the dental index is also almost alike.

A similar relation of the dental index of the two sexes in the human species is also seen, especially in those races where the disparity of size between the men and women is greatest.

	BN.	d.	Index.	Average Index of both Sexes.
Male gorilla, average of 3	124.0	63.0	50.8	} 54.1
Female gorilla, average of 3	108.7	63.3	57.3	
Male chimpanzee, average of 3	96.7	46.0	47.6	} 47.9
Female chimpanzee, average of 3	88.3	42.7	48.1	
Male orang, average of 4	109.2	58.0	53.1	} 55.2
Female orang, average of 2	90.0	51.5	57.2	
Male siamang, 1	79.0	33.0	41.7	

measurements, which it may be hoped will be extended and corrected by other observers having still more ample material at command, are shown in the above table. It will be observed that the three groups into which the races may be separated by the size of their teeth have a general correspondence with the three principal modifications of the human species: the Microdont section, containing all the so-called Caucasian or white races; the Mesodont, the Mongolian or yellow races; and the Megadont section, being composed exclusively of the black races, including the Australians, —*The Journal of the Anthropological Institute of Great Britain.*

Actinomycosis of the Jaw.

THE *New York Medical Journal* of January 3rd contains a report of two cases of this remarkable parasitic disease which were brought before the Chicago Medical Society by Dr. J. B. Murphy. From the fact that only some thirty cases have been recorded, it may be supposed that the disease is of very rare occurrence; on the other hand, the fact that two of these cases occurring quite independently of each other in the practice of one physician would seem to indicate that the disease is more common than would appear from the small number of reported cases. It was only in 1878 that the first case of the disease in man was described by J. Israel, of Berlin; previous to this such cases were confounded with sarcoma, scrofulous and tubercular disease, &c., and it is probable that many cases are still overlooked and considered to be only aggravated cases of alveolar abscess. Indeed the editor of the *New York Journal* goes so far as to say "that in the light of these cases" (*i.e.*, those referred to above as being reported in that journal) "it will be the part of wisdom to look upon every case of apparent alveolar abscess as calling for careful investigation."

Actinomycosis is met with also in animals, more especially oxen, though horses, pigs, and dogs, are also liable to it, and in them it seems to run a more rapid and malignant course than in the human subject. The disease, as occurring in animals, was known to veterinary surgeons before it was recognised by the medical profession, having been fully described by an Italian, Rivolta, in 1868, and named by him *sarcomycos bovis*. Actinomycosis in cattle first appears in the shape of tumours situated on the jaws-

generally the lower jaw, hence it is sometimes called by veterinary surgeons "lumpy jaw;" or it may appear as isolated nodules, or tubercles, with ulcerated surfaces, on the inside of the mouth or nose, or on the tongue. Inflammation is set up in the surrounding tissues, the disease spreads by infiltration, internal organs may become infected, and the animal wastes and dies.

In man also it most often begins in the lower jaw in connection with carious teeth, but it would appear that it may commence in some of the internal organs, as in a case reported by an Italian physician, Dr. Bianchi, in which the lungs were first affected. Generally, however, the disease has its origin in the lower jaw, causing alveolar abscess, whence it extends by contiguity to the neck, vertebræ and thoracic cavity; or the parasite may be carried by the circulation to distant parts, and the lungs or heart be thus affected.

It is of a chronic nature; the duration in fatal cases, and about half the cases hitherto recorded have thus terminated, varying from six months to two years. The only treatment is complete removal of the diseased growth; where this is possible the majority of the patients recover, but when internal organs are affected, the disease is necessarily fatal. The symptoms are those of chronic suppuration, with little pain and no fever. The special diagnostic feature of the disease is the presence of the spores. They are visible to the naked eye as yellow ("sulphur-coloured") granules, and under the microscope radiating threads with club-shaped ends are seen. Its etiology does not appear to have yet been ascertained, but it is readily communicable by inoculation; thus a calf and a horse were inoculated from the second of the two cases related below, and both died within six weeks. The characteristic features of the disease are well described in Dr. Murphy's report, which we subjoin:—

CASE I.—On June 28th, 1884, Dr. Murphy was called to see Mary M., aged 28, who stated that a fortnight before she had begun to suffer from severe toothache on the left side of the lower jaw. Shortly afterwards a swelling appeared in the throat, with great pain in swallowing and inability to open the mouth. The pain and swelling disappeared after her face had been poulticed for several days, but a few days afterwards she was again attacked with toothache, together with an indescribable singing in her ears. A swelling appeared in her mouth, on the outer side of the jaw; the pain grew more severe, and the swelling continued to enlarge up to the time when she applied for advice.

On examination, Dr. Murphy found a swelling behind the angle of the jaw on the left side. The patient could not open her mouth more than three-quarters of an inch, and had eaten nothing for two days. The left tonsil was much enlarged, and filled most of the pharynx; a pale yellow spot marked the place where an abscess was about to break, and a large quantity of pus was set free with a lancet. The patient made a rapid recovery, and was about in a few days. She remained pretty well until July 8th, but did not regain her strength and suffered occasionally from toothache. A small swelling now appeared on the left side of the neck, below the jaw, accompanied by some pain and inflammation, and a few days afterwards she again presented herself for treatment. The lump was about as large as a walnut, the surrounding tissues being considerably indurated. She had several decayed teeth on that side of the jaw. From the feel of the tumour it was supposed that it contained a considerable quantity of pus, but on puncturing it only a few drops escaped. A drainage tube was inserted and antiseptic dressing applied. On her return, two days later, the drainage tube was removed, and about twenty drops of thick creamy-looking discharge oozed from the opening. It contained peculiar sulphur-coloured granules which were recognised with the aid of the microscope as actinomycetes. A number of specimens were prepared and shown to Dr. Fenger, Dr. Bridge, and Dr. Kerber, who agreed with Dr. Murphy as to their nature. The patient was kept under observation for ten days, and each day new specimens were procured. As the swelling and induration continue to increase, and as the patient was sinking rapidly, she was advised to enter the City Hospital, when, after a few days of preparatory treatment, the growth was removed with the assistance of Drs. Fenger, Belfield, and Vinty. An incision was made, extending from the ear to the clavicle, parallel with the sterno-mastoid. A mass of succulent tissue was observed, interspersed with pus and gold-coloured granules, penetrating the surrounding tissues; this was all removed with a knife and sharp spoon. In some places this tissue penetrated from half to three-quarters of an inch. *A carious tooth was removed, and a probe was passed from the alveolus into the wound.* A small portion of the angle of the jaw was chiselled away, and the alveolus and canal thoroughly scraped. A plug of iodoformed gauze was placed in the alveolus, and the wound treated antiseptically. Primary union took place, and the patient made a rapid recovery, gaining over twenty-six pounds in weight within five weeks, and when this report was made no signs of recurrence were observable.

II.—The second case occurred in a boy, aged 18, who consulted Dr. Murphy, on September 3rd, 1884, stating that the previous Christmas, when he was living in Ireland, he began to suffer from severe toothache on the right side of the lower jaw which lasted about two months. Then a swelling appeared at the angle of the jaw, which had gradually

enlarged since, and the pain subsided. On examination, Dr. Murphy found a much decayed molar tooth and a swelling as large as a pigeon's egg situated below the jaw. The swelling showed well-marked fluctuation ; there was not much induration of the surrounding parts. On making an incision only a few drops of pus escaped, but the colour of this attracted attention, and on microscopical examination actinomycetes were found. The sinus was scraped out, and in ten days the parts were completely healed ; but about six weeks later the patient returned with a similar swelling in the same situation. This was treated in the same way, and so far no further recurrence had taken place.

The Anæsthetic Effects of Aconitine on Sensitive Dentine.

IN the first number of "the Austro-Hungarian Quarterly Journal of Dentistry," Dr. Anton Kosma, of Budapest, gives the results of some experiments which he has made with this powerful alkaloid as a dressing for sensitive dentine. The use of preparations of aconite for this purpose is not new, but it has never become general. First, because all preparations except the alkaloid vary much in strength, and are therefore uncertain in their effect ; and secondly, because the alkaloid itself is one of the most potent poisons known, a very small fraction of a grain sufficing to produce alarming and even fatal effects ; hence its use in the mouth is attended with a certain amount of danger. To obviate this risk, Dr. Kosma uses small pieces of Japanese blotting paper which has been soaked in a saturated solution of aconitine in ether and then dried. A piece of this paper four and a half millimetres square (nearly $\frac{1}{3}$ of an inch) contains exactly three milligrammes (about $\frac{1}{22}$ grain) of the alkaloid. Dr. Kosma finds that if the sensibility is great, a piece about twice this size, *i.e.*, equivalent to from six to eight milligrammes, is required to give good results. He removes the caries as far as can be done without giving much pain, then roughly dries the cavity, introduces the prepared paper, either open or folded, and covers it with gutta percha. After from twenty-four to forty-eight hours, teeth so treated can be excavated and filled without causing any pain to the patient. In a few cases he found it necessary to repeat the dressing. After the second day the effect passes off ; the excavation should therefore be proceeded with not later than the end of the second day. It is important that the pre-

pared paper should not be placed loosely in the cavity, but should be well pressed down, so as to be in close contact with the sensitive dentine. The completeness and duration of the anæsthesia varies in proportion to the amount of the alkaloid employed. Dr. Kosma has not found the result so satisfactory when the aconitine is applied directly upon, or in the neighbourhood of the pulp. It does not, however, affect the pulp injuriously, and only causes a slight dull pain for a short time; still he does not recommend it under these circumstances. But in all other cases of acutely sensitive dentine, and in ordinary cases of caries occurring in highly sensitive patients, Dr. Kosma thinks it well worthy of trial. It is probable, however, that this paper was written before the application of Cocaine to dental surgery was thought of, or at all events before its capabilities were generally recognised.

ANNOTATIONS.

It may be as well to remind members of the Odontological Society that, as the first Monday in April happens to be Easter Monday and a Bank Holiday, the usual meeting of the Society will take place a week later, on the 13th, when we believe Mr. Bland Sutton is to read one of his interesting papers on the Diseases of the Jaws of Wild Animals.

MANY of our readers will be glad to hear that the portrait of Mr. John Tomes which was painted last year by Mr. C. H. Macartney for the Odontological Society, has been engraved in mezzotint by Mr. Gerald Robinson. We cannot say that the artist has been quite successful in catching the expression of the original. The lines of the face are somewhat too strongly marked, giving a hard expression which, under ordinary circumstances, is quite foreign to Mr. Tomes' nature. Still, it is not a bad likeness, and we feel sure there are many who will be glad to possess it as a memento of one for whom they must always cherish a strong feeling of respect and loyalty. Copies of the engraving may be seen at 40, Leicester Square, and at 47B, New Bond Street. The price of proof copies with autograph has been fixed at a guinea.

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would specially call the attention of our readers to the article on the Production of Paupers, which will be found at this number. Were it not for the too general prevalence of the practice of giving small doles to applicants for assistance without sufficient enquiry into their antecedents, the career of such persons as the individual who has lately been making a tour in the various Towns and Counties would be brief and unprofitable. We trust that our members living in town will send all such cases to the Secretary of the Benevolent Fund, and that country members will refer them to one of the officers of the Branch to which they belong. We hope also that the plan of having Local Centres, or District Secretaries, may be gradually extended, since this will tend to diminish the excuse for indiscriminate (miscalled) charity.

We are glad to be able to add that the Benevolent Fund is steadily increasing, if somewhat slowly, making its way. Still, it must be remembered that relief is only given where a case is really proved to be a deserving one, and that it is always desirable to give substantial help. The object to be aimed at must be to place the applicant, wherever this is possible, in a position to make a fresh start in life, and for this a certain amount of capital is required. Except in the case of old or evicted individuals, small donations are in the end a very expensive way of giving relief.

Those who rely upon the Fund for some time to come are sure to be disappointed if they are not provided with the means of doing so. It is of its means, and though we hope that all, whether contributors or not, will do their best, in the manner we have indicated, to diminish mendicancy, still we trust that few will stop short of doing so. It will be considered their duty to provide those on whom the responsibility of relief is shifted with the means of doing so, and we hope that it will be found desirable to do so in the event of its being found desirable.

The paper which we publish in the present number on "The Dental Key," borrowed from the pages of the *Dental Cosmos*, is a remarkable one; the more so since it is not the work of a young man, but of an octogenarian, glorying in old fashioned practices, but of a well known and highly respected professor at the chief of the Dental Universities. To many of the younger generation of dental practitioners the opinions put forward by Dr. Fillebrown

will appear to be rank heresy. Well, even so, a little heresy occasionally is not a bad thing, if it calls forth thought and rouses us to find a reason in justification of our own opinions.

WE agree with all that Dr. Fillebrown says as to the capabilities of the key. We, too, have seen it used with the most astonishing dexterity by practitioners of the old school. We can picture one of them now ; the way in which, in a difficult case, he would heat the claw, fashion it to a nicety with two or three taps of a hammer, retemper, and then out came the stump with unfailing regularity. No bruised jaw, and very rarely, indeed, a broken tooth. That the key is an instrument of great power is evident from its construction, and that it is capable of doing excellent work in skilful hands cannot be denied. The misfortune is, or was, that it is also capable of doing the most serious mischief in unskilful hands. An eminent dentist is reported to have said that a hatfull of eyes must be sacrificed before a man could become an accomplished ophthalmic surgeon ; and similarly the number of teeth which were broken, and jaws which were damaged, before the necessary high degree of skill in the use of the key could be attained to, are terrible to contemplate.

It appears to us also that the dynamics of the key have never been as carefully worked out as they might be. It was always used more or less by "rule of thumb." Dr. Fillebrown's paper affords ample evidence of this. Thus, he himself uses it only for the extraction of bicuspid ; his friend, Dr. Mead uses it for molars, and seldom for bicuspid. Dr. Fillebrown applies the key on the inside of the jaw ; Dr. Preston, he says, uses it on the outside. If Dr. Fillebrown would devote his thoughts to formulating some intelligible rules for the proper use of the instrument under various circumstances, he would have a better chance of succeeding in his attempt to obtain a "reconsideration of its merits." But, even then, we cannot honestly say that we wish him success, or believe that he will attain it.

THE Dentists' Register for the current year has lately been published, and we are glad to say affords, as usual, satisfactory evidence of the gradual progress of our profession. We cannot

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ter than quote the following remarks of the Editor of the *Times* on this subject :—

It is interesting to note the gradual decline in the number of dentists without diplomas, and the steady, if slow, increase of those who have passed a dental examination. Last year's Dentists' Register included 4,468 dentists without a license, 806 with a dental, without a dental but with a surgical qualification, that is, 84.37 per cent. of the practitioners on the Register were unlicensed. In this year's Register, which has just been published, we find that the practitioners with a dental license have increased in number from 706 to 846, while the unlicensed practitioners have fallen from 4,395, so that the latter category now includes only 83.49 per cent. of the names on the Register. Of the 40 dental licentiates admitted to the Register during the year, the English College of Surgeons admitted 12, the Edinburgh College 4, the Irish College 19, and the Glasgow Faculty 1. Since 1878, the year in which the Dentists' Register was passed, 305 dental students have been registered, of whom only 83 as yet remain *in statu pupillari*, so that in the course of a year or two we may expect to see a very considerable increase in the number of licensed dentists. Sixty-eight fresh students were registered during 1885."

I take the following from a very interesting and suggestive paper on the Surgery of the Epiphyses by Mr. Wheelhouse, of Glasgow, published in the *British Medical Journal* of the 7th inst. The subject has of course little to do with our department of the Surgery, but the passage we extract might quite as well have been addressed to dental as to medical students. The work of the skull is, we fear, not as well known to the younger members of the profession as it deserves to be :—

To those of you who have not already read it, I would earnestly recommend a thoughtful perusal of the little monograph on the development of the cranium which I hold in my hand—it is the work of a friend who has gone to his rest, John Hilton—for I never remember to have read anything which gave me greater pleasure. As a logical and philosophical exposition of the structure and growth of the skull, it is, in my opinion, unequalled ; and it will be impossible to rise from the study, as he herein presents it, without advancing

an account of the development of the sphenoid bone alone, of the manner in which, by its growth, provided for by many separate centres of ossification, and by its position in the centre of the base of the skull, it is enabled, acting as a wedge, so to provide for the in-

creasing size, and to give space for the growing lower maxilla, for the replacement of the twenty primary by the thirty-two permanent teeth, and for the widening and spreading out of the temporals by the adapted pressure of the condyles of the lower jaw, with the lateral expansion of the base, is an example of argument so simple and yet so perfect, that it will abundantly repay you for the expenditure of a large amount of both time and thought."

As this Journal was passing through the press, we received the March number of the *Independent Practitioner*, containing a criticism of an editorial article entitled "Some Recent Papers on Dental Histology," which appeared in our January issue. The editor of the *Independent Practitioner* says with regard to it, "We are of opinion that had the editor known all the circumstances under which the paper was read, and the end in view in its production, he would not have written the article, for the Journal has never to our knowledge, been accused of wanton unfairness. A learned professor in one of our schools, a famous writer, and an acknowledged authority on most professional subjects, had read a paper before another body in which he advanced some theories essentially identical with those taught by Goodsir, and the object of Dr. Williams was to combat these views which, coming from such high authority, he deemed pregnant with evil, and misleading to students of histology. To this end he again went over the ground," &c.

It is impossible for us here to enter upon a full defence of our article. We regret that the circumstances of its production, and the end in view, were not more clearly set forth in Dr. Williams' paper, for taking this by itself, the writer does appear to render himself liable to have exceptions taken to the way in which the matter is presented. Scientific men cannot be too careful in avoiding the smallest semblance of claiming originality for matter which has already become common property. We may, perhaps, refer to the subject more at length next month.

WE are glad to learn from the same source (*The Independent Practitioner*) that the Executive Committee of the International Medical Congress have decided, as we fully anticipated they would do, to add a Section of Dental and Oral Surgery to those

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determined upon. The officers of the new section have been definitely selected, but it is stated that Dr. Taft will be the Chairman.

Contemporary the *Dental Record*, introduced a few months ago what we believe to be an entirely novel feature in dental literature, viz., the publication, in the form of a *feuilleton* or serial, of a serial story entitled "the Life of a Student, as he is," by the author of Vernon Galbray, &c. We do not feel called upon to express any opinion with reference to this story, nor can we say anything as to the merits of the story in its present state, but we can say of the portion which appeared in this month that it presents a very true and graphic sketch of dental education forty or fifty years ago, and we commend the perusal of it to the present generation of students with the belief that it will increase their appreciation of the very circumstances under which their entrance into the profession is now accomplished.

A paper in the *Gazette des Hopitaux*, February 10th, Dr. Magitot offers an explanation of the much more frequent occurrence of dental caries in women, as shown by Dr. Magitot's case. In them the teeth are of less density and their juices are less alkaline; and this last circumstance, which exerts a dominant influence over the female pathology (as shown by the much greater liability to biliary lithiasis and mitral stenosis; aggravated at every pregnancy. The teeth, possessing a smaller proportion of mineral constituents, offer less resistance, and the saliva is acid as compared with the same fluid in men. It has been shown by numerous comparative examinations that women have few carious teeth prior to their first pregnancy, but find that they then lose one or more teeth, as they do in successive pregnancies. A pregnant woman who does not receive in her food the elements necessary for the formation of the various tissues constituting the foetus, and especially the nervous system, may support a first pregnancy; but if she has to undergo several pregnancies in succession, without receiving the necessary special aliment, so that she is obliged to draw upon her resources, her recovery is placed in jeopardy, and a series of troubles may arise of which dental caries is only one of the most

THE following extract from Strype's well known "Lives" appeared in the *Pall Mall Gazette* of the 10th inst. This toothache of Queen Elizabeth's is a matter of history, and appears to have created more excitement at the time than a ministerial crisis would do nowadays. We remember reading not long since in some magazine a very curious letter from the great Lord Burleigh to Sir Christopher Hatton on the same subject; perhaps some of our members may also have met with it, and can give us the reference :—

"I will not omit a Tradition that goeth in the family of the Aylmers, of the Bishop's stout Heart in a pretty odd Instance, namely, in causing one of his Teeth to be drawn once in the Queen's Presence, for the better encouraging her to undergo that present Pain for her own Quiet and Ease afterwards. And indeed I find she was once so disquieted with the Tooth-ach that it gave a concern to all the Court. It was in the Month of *December*, 1578, when she was so excessively tormented with that Distemper that she had no Intermission Day nor Night, and it forced her to pass whole Nights without taking any Rest : and came to that Extremity, that her Physicians were called in and consulted. The pulling it out was esteemed by all the safest way ; to which, however, the Queen, as was said, was very averse, as afraid of the acute Pain that accompanied it. And now it seems it was that the Bishop of *London* being present, a Man of High Courage, persuaded her that the pain was not so much, and not at all to be dreaded ; and to convince her thereof told her she should have a sensible Experiment of it in himself, tho' he were an old man, and had not many Teeth to spare ; and immediately bad the Surgeon come and pull out one of his Teeth (perhaps a decayed one) in her Majestie's Presence. Which accordingly was don : and She was hereby encouraged to submit to the Operation herself."

THE liquid formed by the mixture of camphor and chloral hydrate has long been known, and its value as a topical anodyne is practically recognised. The fact that camphor and carbolic acid combine with the formation of a colourless liquid has also been stated as an isolated and suggestive fact from time to time during the last few years, but it seems hitherto to have excited but little attention. Dr. Theodore Schæfer, in a recent number of the *Boston Medical Journal*, describes the preparation and properties of phenol-camphor to which he assigns the provisional formula $C^8 H^{11} O$ (?). It is best obtained by heating crystallised carbolic acid until it melts, and then gradually adding camphor, in equal

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The clear liquid thus produced is characterised by its fluidity, not solidifying when subjected to the action of a mixture of snow and salt. It is described as possessing a faint odour of camphor, entirely extinguishing that of carbolic acid, with a sweetish camphoric but biting taste, though less than that of carbolic acid, somewhat benumbing to the touch.

It is soluble in alcohol, ether, chloroform, and ethyl acetate, but it is insoluble in water, in which it sinks. Its density and specific gravity do not seem to have been determined.

It is said to have proved a useful and efficient anæsthetic when introduced on cotton into the cavity of a carious tooth, as a local application in cases of ingrowing toe-nails. It is an antiseptic, readily blending with paraffin, vaseline, and other oils, less irritating and less caustic than carbolic acid, and of the advantage of possessing a pleasant odour.

In our notice of Messrs. Burroughs and Wellcome's Hazeline, published in the last number of this Journal, we spoke of it as apparently a "less concentrated" preparation than the extract of Hamamelis. As Messrs. Burroughs and Wellcome fear that this might be taken by some of our readers to mean that it was a less *efficacious* preparation, we feel bound to state that this was most certainly not the meaning we intended to convey, and that from our experience of Hazeline, it is in accordance with truth.

Preparations are so distinct that it would be difficult to make a comparison between them. Pond's Extract has been used chiefly as a styptic or hæmostatic, and has proved very successful for that purpose. Hazeline has not the same styptic power, though it is decidedly astringent: it is however, different from other astringents with which we are acquainted. As we have not much time, month, our experience of it in dental practice is not yet sufficiently large to enable us to give a proper description of it, but it is, however, well spoken of by dental practitioners. We have used it longer than we have, and from our knowledge of itsoubted efficacy in general medical practice we certainly think that it is likely to be found useful in the class of cases mentioned by us in the notice above referred to.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Anonymous Communications.

BRITISH DENTAL ASSOCIATION,
40, LEICESTER SQUARE, LONDON, W.C.

March, 1885.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—As I have lately received several anonymous communications, requesting I would answer the same in the Journal, I should feel obliged by your allowing me to call the attention of my correspondents to the standing notice in the Journal that "anonymous letters cannot receive attention." At the same time I wish to say that I shall be very happy to give any information in my power to any gentleman who sends me his name and address.

I am, your obedient servant,

F. CANTON, *Hon. Sec.*

Proposed Fine Art Exhibition at Cambridge.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—At the last meeting of the Representative Board I obtained permission, subject to certain conditions, to bring forward at its next meeting a definite proposition to the following effect:—"That arrangements should be made at the Annual gathering of the British Dental Association at Cambridge in August, to hold an Exhibition of Artistic Work (other than professional) executed by practitioners of Dentistry." The exhibition will be on behalf of the Dental Benevolent Fund, and is intended to include paintings in oil and water-colour, statuary, subjects modelled in clay or cast in plaster. Wood, bone, and ivory carving. Artistic work of all descriptions in the precious metals, brass and iron, including under the two latter metals, Repoussé and wrought work. Mosaic in wood, stone, glass, or ceramic, and any other side product of the technical and artistic skill that may be within the compass of the student or practitioner of Dental Surgery.

My aim in making this suggestion is twofold; first, to get money (by charging for admission) for our Fund; but chiefly to demonstrate to those who care to try and understand, that the direct influence of our professional training is broad, sympathetic, and artistic, and that the pitiful idea of plugging and extracting teeth being the limitation of our capabilities is a distinct error. If those who sympathise with this project will write and tell me what they will do to help, we might

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re a meeting to consult over the details, and be of use to
in helping to make this unique exhibition an unqualified

Yours truly,

OAKLEY COLES.

bole Street, W., March 11, 1885.

Re Amalgams.

FOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."
I suggest that the profession take a stand against the
puffs which secure the patronage of many dentists. Is it
to say that we will purchase nothing in the dark, and that we
a primary test the components of all amalgams before pur-
we do not do this, we are simply experimenting with each
round to us.

think that this is fair neither to operator or patient. To the
a manifest injustice. For instance, we purchase a filling
suited for Front Teeth," and it turns black. We purchase
where shrinkage is said to be nil, and we find it quite the re-
so on.

vendors submit to the profession the analysis of their filling,
y take a patent out to protect themselves, and we can at
lly judge for ourselves as to its suitability under different
ces.

easy to brag up a filling, and to call it of precious metal,
s a leading feature: or "gold," when there is merely "the
in loise" of that metal, in the composition—not that it
sirable to add more, but why not be honest and call it after
ponents? Is the object to mislead the *patient*? Oh,

Yours, &c.

COMMON SENSE.

APPOINTMENT.

P. REBOUL, L.D.S.Eng., has been appointed Dental
to the Kaiser Wilhelm German Orphanage.

NONYMOUS letters directed to the Secretary of the
ion cannot receive attention.

rs must be accompanied by Letters of Advice.

ations intended for the Editor should be addressed to him
Leicester Square, W.C.

ons to the Treasurer, 40, Leicester Square.

ments to Messrs. J. & A. CHURCHILL, 11, New Burlington
V.

ANSWERS TO CORRESPONDENTS:—

Mr. WALTER BROWNE : No general rule can be laid down for such cases ; each must be decided on its own merits, the probable motives and other attendant circumstances being taken into consideration. As regards the facts of the case specially referred to, it must be evident that you, living on the spot, have much better opportunities of arriving at the truth than we can have.

ALPHABET : We agree with you that the law as to titles is in a very unsatisfactory state. A man may not style himself L.D.S., M.R.C.S., or M.R.C.P., unless he actually possesses the diplomas indicated by these initials. But it appears to be impossible to prevent him from adopting others, such as those you mention, which are very close imitations, and which, no doubt, answer the purpose intended. It is very doubtful whether any improvement in the law can be carried out ; there seems to be no prospect of it at present.

INTERESTED : Thanks for the suggestion ; we will bear it in mind

COMMUNICATIONS HAVE BEEN RECEIVED FROM:—

Messrs. Henry Blandy, Nottingham ; Dr. Walker, London ; Dr. Waite, Liverpool ; Dr. Stack, Dublin ; Burroughs and Welcome, London ; Brunton, Leeds ; "Common Sense" ; Dr. Philpot, London ; C. W. Dunn, Florence ; Dr. Arkovy, Budapest ; H. B. Mason, Exeter ; Chas. Tomes, London ; "Alphabet" ; F. Huxley, Birmingham ; Henry Sewill, London ; W. B. Macleod, Edinburgh ; A. W. Baker, Dublin ; F. Canton, London ; W. Campbell, Dundee ; Dr. Cunningham, Cambridge ; Dr. D'Arcy Adams, London ; E. M. Tod, Brighton ; Oakley Coles, London ; Geo. Robinson, Oamaru, New Zealand ; &c.

BOOKS AND PAPERS RECEIVED:—

A Suggested System of Dental Notation, by George Cunningham, D.M.D. ; Dental Cosmos ; Independent Practitioner ; Ohio Journal of Dental Science ; Archives of Dentistry ; Dental Register ; Deutsche Monatsschrift für Zahnheilkunde ; Monatsschrift des Vereins Deutscher Zahnkünstler ; L'Odontologie ; Progrès Dentaire ; Revue Odontologique de France ; Revue Odontologique de Bruxelles ; Messenger Odontologique (Russian) ; Dental Record ; British Journal of Dental Science ; London Medical Record ; Birmingham Medical Review ; British Medical Journal ; Lancet ; Medical Times ; Medical Press and Circular ; Quarterly Journal of Anatomy ; Journal of the Anthropological Institute ; Chemist and Druggist ; Transactions of the Odontological Society of Great Britain ; Transactions of the Odonto-Chirurgical Society ; Manchester Guardian, Feb. 17th ; Christchurch (New Zealand) Telegraph, Aug. 27th ; Otago Daily Times, Nov. 17th ; New Zealand Gazette, Dec. 11th ; &c.

Charing Cross	... Mr. Fairbank ...	...	...	...	Monday, Wednesday & Friday, 9 a.m.
St. George's	... Mr. Winterbottom ...	...	...	...	Tuesday, 9 a.m. ...
Guy's	... Mr. Henry Moon ...	...	...	...	Tuesday and Thursday, 12.30 noon ...
King's College	... Mr. S. H. Cartwright ...	...	...	...	Tuesday and Friday, 10 a.m. ...
The London	... Mr. Ashley Barrett ...	...	...	...	Tuesday, 9 a.m. ...
St. Mary's	... Mr. Howard Hayward ...	...	...	...	Wednesday and Saturday, 9.30 a.m. ...
Middlesex	... Mr. Bennett ...	...	...	...	...
St. Thomas's	... Mr. Ranger ...	...	...	...	Tuesday, ...
University College	... Mr. Hutchinson ...	...	...	...	Wednesday, 9.30 a.m. ...
Westminster	... Dr. Walker ...	...	...	...	Wednesday and Saturday, 9.15 a.m. ...
London Dental	... Mr. David Hepburn ...	...	...	...	Monday, 9 a.m. ...
"	... Mr. R. H. Woodhouse ...	...	...	...	Tuesday, 9 a.m. ...
"	... Mr. Gregson ...	...	...	...	Wednesday, 9 a.m. ...
"	... Mr. Hutchinson ..	...	...	...	Thursday, 9 a.m. ...
"	... Mr. Henry Moon ...	...	...	...	Friday, 9 a.m. ...
"	... Mr. F. Canton ..	...	...	...	Saturday, 9 a.m. ...
National Dental	... Mr. Henri Weiss ...	...	...	...	Monday, 9 a.m. ...
"	... Mr. Alfred Smith ...	...	...	...	Tuesday, 9 a.m. ...
"	... Mr. G. J. Williams ...	...	...	...	Wednesday, 9 a.m. ...
"	... Mr. A. F. Canton ...	...	...	...	Thursday, 9 a.m. ...
"	... Mr. T. Gaddes ...	...	...	...	Friday, 9 a.m. ...
"	... Mr. Harry Rose ..	...	...	...	Saturday, 9 a.m. ...
					Mr. Bailey.
					Mr. Bird.
					Mr. Mills.
					Mr. Braine.
					Mr. Bird.
					Mr. Bailey.
					Mr. Glassington.
					Mr. Tyrrell.
					Mr. Hewitt.
					Dr. Winslow.
					Mr. Tyrrell.
					Dr. Winslow.

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, , at 5.30 p.m.; Committee of Management, March 16th, at 5.30 p.m.; Medical Committee, March 10th, 5.30 p.m.

Monday, April 13th, at 7 p.m.; General Meeting, at 8 p.m.
 Publishing Committee, March 26th, at 5.30 p.m.

Members are reminded that their Subscriptions for the current year are now due, and should be remitted to the Treasurer, at 40, Leicester Square.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION.
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 4.

APRIL 15, 1885.

VOL. VI.

Dental Reform in America.

THE Address given by Dr. Darby, the President of the American Dental Association, at the meeting held last autumn at Saratoga Springs, is well deserving of careful perusal, as it is largely devoted to the subject of dental education and may be held to embody the views of the most independent of our brother practitioners across the Atlantic, and we regret that want of space prevents us from reproducing it *in extenso*.

It is a matter for legitimate congratulation that some of the things there advocated tally pretty closely with the course pursued in this country. Not that we are disposed on that account for a moment to rest in the disastrous state of mind which would result from much self-satisfaction, for that would be an end of progress and a beginning of retrogression.

Amongst the standing resolutions of the Association we find one that runs "That henceforth no dental college shall

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ed to representation in this Association that does
ire a good English education as a preliminary
ion for its matriculation, to be ascertained by
tion;" but the indirect pressure thus brought to
: not as yet proved wholly effective, for in the
ve read, "so long as dental colleges are dependent
: fees of students for their support, so long will
a tendency to increase the number of matriculants,
ve of the qualifications of the men who apply.
way to determine this matter of fitness would be
orm rigid and systematic preliminary examination,
then the difficulty would not be entirely overcome,
eason that examinations do not, and cannot well
all the qualifications constituting fitness for entrance
study or practice of dentistry."

medy which most commends itself to Dr. Darby's
that endowments should be raised, rendering it
for teachers to devote their whole time to instruc-
at the same time to stand in a position of com-
pendence of the numbers attracted to their courses,
urther asks if it would not be better to have fewer
larger attendance upon each, and better facilities
uction? But this question of endowment versus
by results, if it may be so expressed, is a large one,
history of endowed schools in this country does not
nish arguments in favour of this form of payment;
gh it removes the incentive to competition in the
of smaller requirements from the student, it also
the healthy stimulus of competition by the offering
y better course of instruction. The difficulty, so
l events as preliminary education is concerned, is
pretty well met by the arrangement in force in
ntry, in which the entrance examination is con-
y bodies wholly independent of the dental schools.

A Fruitless Prosecution.

It is always a matter for regret that any prosecution under the Dentists Act should be undertaken without thorough previous investigation. The experience gained by the Medical Defence Association has demonstrated that it is somewhat difficult to obtain convictions, or at least to secure the infliction of penalties adequate to deter offenders, under the Medical Act, even when a clear case is presented, and the Dentists Act follows the lines of the Medical Act pretty closely, though its penal clauses are more carefully drawn.

In the case of *Hodgson v. Yates*, which was recently brought before Mr. Paget at the Wandsworth Police Court, the defendant was shown to have used the letters R.D.S., meaning "Registered Dental Surgeon," though his name was not to be found in the Dentists' Register for 1885. He was thus clearly, according to the wording of the Act, an offender against its provisions. But the defence was raised that he had formerly been registered, and that his name had been removed by the Registrar, in strict conformance with the provisions of section 12 of the Act, in consequence of communications addressed to him at his registered address having been returned through the Dead Letter Office in the course of 1880.

The magistrate, however, dismissed the case with costs against the prosecutor, and even refused to grant a case for submission to a higher court; a decision which we learn with the utmost regret. For although it is easy to understand the view taken by Mr. Paget that the offence was merely a technical one, it is hardly possible to argue that no offence at all had been committed. And although we do not profess to any legal knowledge, we had believed that the usual course under such circumstances was to inflict a nominal penalty, and to give costs against the offender, or at least to let each side pay their own.

The public utility of the Medical or Dentists' Registers depends upon the clear identification of the persons registered, and it is expressly enacted that it "shall state the full names and addresses of the registered persons;" so that any decision which renders it difficult or impossible to maintain the correctness of the registration strikes at the root of its whole utility.

We would most strongly deprecate anything which would in the remotest degree appear like vexatious litigation; at the same time it is expressly stated in the Act (clause 3 of section 11 and section

29) that the last published Register is the only one which is authoritative, and anyone who has failed by his own neglect to maintain his registration, lays himself open to a prosecution which may be undertaken in perfect *bona fides*. It seems, therefore, only equitable that he should bear the costs of the proceedings, although in circumstances like the present, in which the defendant can plead that, although not actually registered, he has a right to the privilege, and that his name can be restored on application to the Medical Council, no court would be likely to inflict more than a nominal penalty.

ASSOCIATION INTELLIGENCE.

Scottish Branch.

THE Third Annual Meeting of this Branch will be held at the Queen's Rooms, Dundee, on Friday, June 5th, at 5 p.m., Dr. John Smith, LL.D., President, in the chair.

Central Counties' Branch.

A MEETING of this Branch was held at Birmingham, on the 26th ult., Mr. Chas. Sims, President, in the chair.

Amongst those present were Messrs. F. J. Thorman, F. E. Huxley, Stephen Birt, Roff King, J. Humphreys, W. E. Harding, F. W. Richards, Jordan Lloyd, J. Hinds, F. R. Howard, A. D. Miller, W. Nadin, F. H. Goffe, W. Palethorpe, Breward Neale, Clifford Batten, and J. W. Roberts.

The following gentlemen were balloted for and elected members of the Branch:—Messrs. Walter Roberts, L.D.S.Glasg., and Frank H. Goffe, L.D.S.Ed.

The PRESIDENT announced that the Annual Meeting had been fixed for Friday, September 25th.

Mr. HUMPHREYS exhibited a very complete and beautifully prepared series of specimens of skulls, jaws and teeth of the British Mammalia. These were much appreciated, and were rendered very interesting by a concise description which Mr. Humphreys read, pointing out the more remarkable features in the dentition of the principal animals.

The PRESIDENT thanked Mr. Humphreys for his paper, and

expressed a hope that he would again allow the specimens to be inspected at the Annual Meeting, with any additions he might desire to make to the explanatory notes.

Mr. HUXLEY then read the paper on "Constitutional Treatment of Caries," which will be found below.

A discussion followed, in which Messrs. Roberts, Hinds, Sims, Butler, Humphreys, Harding, Neale, and Richards, took part. The principal points raised being with regard to the six-year-old molars—when should their removal be decided on, and why did Mr. Huxley advise the use of chloroform?

Mr. HUXLEY replied that he would remove the six-year-old molars, as he had stated in his paper, whenever they could not be made permanently serviceable, but would endeavour to preserve them temporarily until the eruption of the second molars, or later. He preferred to remove all four at one time, under chloroform, because they were often so broken up that only one could be removed under gas, and if the operations were not performed at one sitting, then completion was often put off until too late.

Mr. GOFFE then read a very interesting paper on "Necrosis of the Jaws," and showed some large sequestra removed from some of his cases.

Some casual communications were also brought forward and discussed, and the meeting terminated with the usual vote of thanks to the authors of the papers, &c., and to the President.

ORIGINAL COMMUNICATIONS.

Constitutional Treatment in Caries.*

By F. E. HUXLEY, M.R.C.S.Eng., L.D.S.Ed., Birmingham.

MR. PRESIDENT and GENTLEMEN,—The following thoughts on cases in daily practice were originally jotted down to read before a meeting of the Midland Branch of this Association more than a year ago. Further observation during the past year has served to confirm the opinions which I had formed respecting these cases, most of which I have had the opportunity of watching in their subsequent progress.

The question "What can we do to prevent decay"? is familiar

* Read at the meeting of the Central Counties' Branch at Birmingham, on the 26th ult.

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ars of every dentist, but we are still very far from being able to give it a satisfactory answer, our knowledge of the etiology of caries being too limited and uncertain. We find ourselves often inclined to evade the question, and to go on patiently plugging the teeth as they appear; - perhaps, in addition, prescribing some general remedy when the conditions are obviously unhealthy.

I would not in the least undervalue local treatment; indeed I often make it much more thorough than it usually is. For example, the timely removal of hopelessly decayed teeth may often improve the whole aspect of the mouth in a few weeks' time, by removing the way with the foul secretions and allowing the remaining teeth to be brought into proper use. How often are the six-year molars a source of pain, abscess, and imperfect mastication in growing children; the more immediate results being seen in a red and irritated tongue and the unhealthy sticky mucus coating the teeth.

The advantages attendant on the removal of diseased teeth from overcrowded mouths must not be overlooked. On this point, I cannot help speaking strongly in favour of removing the four six-year-old molars whenever they show such extensive caries as will prevent their being made permanently useful. I believe the most humane method is to do it at once under the influence of chloroform. Many a child of ten or twelve years who has become thin, pale, and irritable, will then recover in a few months, the remaining teeth becoming clean and serviceable, and no constitutional treatment being required.

Another important adjunct is found in the use of certain local anæsthetics, such as bicarbonate of soda, or aromatic spirits of clove, which are often of the greatest service in tiding over a patient during which the oral secretions are abnormally acid. Of course, careful filling is never to be neglected. I shall refer more fully to this subject later on.

As we are not able to point out any immediate means by which the progress of caries can be arrested, it is at any rate important that we should be able to give some prognosis; and in order to do this we must be able to state that dentine is capable of establishing a certain *vital* barrier, which varies greatly in different individuals and at different periods of life, and greatly influenced by varying conditions of

As stated in his Summary of Conclusions concerning Caries, Dr. Watson says, "The tooth attacked by caries does not remain

passive and inert, but may in some measure undertake to resist its action by the phenomena of *condensing dentification* of the ivory."

There are children in whom the teeth appear at first so hopeless that we are inclined to give up all hope of saving them; yet they may often with careful and proper treatment be brought to maturity without the loss of a single tooth. On the other hand cases over which we may spend hours of work will go from bad to worse, our fillings falling out, and new cavities forming till the teeth are literally riddled, and break to pieces under our instruments.

When young people are brought to us with a large number of cavities, and evidence that the teeth are being rapidly destroyed, we frequently have to combat great local sensitiveness, and a general nervous condition which make the first steps of our treatment exceedingly difficult.

There can be no greater mistake than to commence with the idea of inserting gold fillings at this stage, and I have seen many cases in which this has been attempted that have not only hopelessly failed, but a dread of dental operations has been established which it is very difficult ever to overcome. I would advocate the use of any temporary stoppings which will suffice to protect the cavities from external influences, and prevent the onset of pain. For this purpose the zinc preparations and gutta-percha will usually meet all requirements.

We must at this stage be particularly careful to avoid if possible laying bare any pulps, trusting rather to the natural cap of dentine, which, though softened, will often serve as the best protection until some recalcification has been established.

Further, we have to avoid any caustic or too irritant substances, and the zinc-oxychloride must be used with the greatest judgment, as this preparation carelessly used will often cause death of the pulp.

I will now quote briefly a few cases in which the general health had a marked influence over the progress of the disease:—

In 1881, Mr. H., a rapidly-grown, tall young man, in his 18th year, exhibited premonitory signs of phthisis, and was recommended a sea-voyage by his physician. Before leaving home he consulted me with regard to his teeth, which had been for some time a source of much pain. The teeth were long, and of fine shape and size; considerably overcrowded, the upper laterals biting behind the lower row. There were about fourteen cavities

and two exposed pulps. At the patient's urgent request no extractions were performed, except one troublesome lower molar root ; but a free use of the file was made to gain access to the molar and bicuspid cavities. Three small cavities were filled with gold, three with amalgam, and the rest with zinc-oxychloride, or phosphate, and Jacob's gutta-percha.

After twelve months the patient returned in robust health, having gained four inches chest measurement. The teeth on examination presented no fresh cavities, nor had there been any pain till within the last month of the voyage, and that was owing to the failure of two of the phosphate fillings. On removing the temporary fillings, a most satisfactory condition was found. At points where the cornua of the pulps were nearly exposed, a solid foundation of dentine was seen ; and in one of the cavities, which had an actual perforation, a solid formation was seen blocking the aperture.

In this case practically no drug treatment was employed, though a little carbonate of lime was given for use when condensed water only was available ; it was only, however, needed for a few weeks.

The next two cases I will quote were apparently influenced to a great extent by change of climate, and possibly of diet.

Miss N., a young English lady, who had been for three years at a German school. Fraulein K., who came from the same country to England. Both about twenty years of age.

Miss N. had spent many hours under the operations of an American dentist, who visited the city during the summer months. The evidence of his skill was seen in several isolated blocks of gold, which stood as melancholy monuments in the centre of masses of decay ; some well-filled fissure cavities still held good.

On drying the gums, which were congested close to the necks of the teeth, a thin acid secretion exuded, which could not be checked by the usual astringents.

There had been an obstinate neuralgia on the right side, which was ultimately traced to the first upper molar, filled on its anterior aspect. The filling removed, showed the cavity to be dangerously near the pulp. A gutta-percha filling was inserted, but the pain coming on very severely, the tooth was extracted, when it was found that another cavity, inaccessible, had approached the pulp from behind, and that suppuration was already going on within.

A severe struggle took place with the left canine, which was ultimately saved ; and by pursuing an expectant treatment the teeth are now useful and stationary, as far as decay is concerned.

No medicinal treatment was employed. This lady was married shortly after her return, but has not become a mother. The abnormal secretion from the gum has gradually disappeared, though no local application seemed to affect it; the dentrifice has been simply precipitated chalk.

In the case of the German lady, there was a similar secretion from the gums, accompanied by a greenish stain near the necks of the teeth. Some small proximal cavities in the incisors had been filled with amalgam, and were already failing. Both upper and lower bicuspid were largely denuded of enamel; one being very tender and useless, was extracted, and the patient led to expect the same treatment should the others become troublesome, filling being out of the question. The cavities in the centrals were temporarily filled with gutta-percha.

This patient was markedly anæmic, and was, in consequence, ordered a course of iron by her physician; no other treatment was employed.

I saw her again after two years. A most remarkable arrest had taken place in the carious process; the teeth which were nearly denuded had acquired a hard, glassy polish, the centrals were quite free from abnormal sensitiveness, and have since been successfully filled with gold.

These, then, will serve as examples of cases in which an arrest of decay has taken place, and for which some hygienic condition can be found accountable. I have notes of some further cases in which I have been unable to discover any material change in the surroundings, but which I have treated with a preparation of carbonate of lime which, I believe, had some part in producing the change.

Miss T., aged 16, presented herself with cavities literally in more than half the teeth, those in the incisors being intolerably sensitive.

The mother told me that her two other daughters, both under twenty, had several artificial teeth; and was naturally anxious to know if anything could be done to avert this in the present case. One upper bicuspid was extracted, and the neighbouring first molar saved only after devitalizing the pulp. The incisor cavities, very imperfectly excavated, were well dried and filled with oxy-chloride cement. The lime was then given in the form of carbonate, reduced to a high state of subdivision by triturating with nine times its bulk of milk-sugar. A grain of this powder was taken

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the tongue twice a day, and continued on and off for a month.

Under the above circumstances, I did not see this patient for six months when most of the temporary fillings had disappeared, and three more fissure cavities had appeared in the lower teeth. The teeth were, however, less sensitive, and the fillings treated in a more thorough manner, and I am now gradually restoring them by gold and amalgam. This patient presented, so far as I could see, no abnormal secretions, and kept the teeth cleansed.

I have employed the above treatment in quite a large number of cases with highly satisfactory results, and have not been able to obtain any improvement under the phosphatic remedies, such as syrup, which I have also perseveringly tried.

One more case I have selected as a specimen of a far too large class in which inquiry has brought to light the disastrous effects which may be caused by excessive brain work, or, as it is now called, neurasthenia.

A boy, aged 13, showed me his teeth on account of the incisors being slightly crowded out of line: I was able to give them a perfect set, and recommended that the slight irregularity should not be treated. The lad was then just entering day-school, and did not happen to see me for about two months. He then appeared with bad pain proceeding from the left upper molar, which had not been very long erupted, and which I had to extract. The whole buccal surface was simply covered with a great pain was produced by the mere pressure and friction of the cheek over the decayed surface.

The second right bicuspid and first molar were also badly attacked, and I soon after had to remove the former, and have since been endeavoring to vitalize the latter. Several cavities had also appeared in the other molars. The tongue was furred, and the boy had a nervous, restless manner that rendered treatment very difficult to carry out.

In trying to restore the teeth to a useful state, I elicited information as to the hours of study, which I found were quite excessive.

The supposed half-holidays were devoted to *extra studying* but the shortest time for meals and recreation; the whole of the day included the dancing-class and classes in a gymnasium. Drawing, violin playing, and lastly, learning French and German, were among the accomplishments of our friend.

I saw this youth lately, he having just returned from a school in Germany, where he has been completing his education, and he is now engaged in corresponding, &c., at an office.

He is nervous and excitable, and suffers from headache and acute dyspepsia. To keep his teeth together at all requires frequent and patient work. What chance have remedies against such odds?

I have said little with regard to drug treatment ; believing that true success is more likely to be gained by seeking in consultation a competent physician, who may often bring to light and successfully treat constitutional conditions, which it would be quite out of our province as dentists to attempt. I believe there are many general practitioners who would interest themselves in this aspect of dental disease, and who would be in a better position to discover functional disorders, or unhealthy habits or surroundings, and to apply appropriate remedies.

Presidential Address

Delivered at the Annual Meeting of the Midland Branch at Nottingham

By HENRY BLANDY, L.D.S.Edin.

GENTLEMEN,—On taking this chair, let me first thank you for the great honour you have done me by so unanimously electing me to fill it. When I remember that the Midland Counties Branch is one of the largest and most important of the subdivisions of the British Dental Association, and that it extends over seven counties, I may well feel proud of the distinction ; but when I have the personal recollection of such excellent presidents as Messrs. Henry Campion, Stewart, Roff King and Harrison, I tremble for your choice while I rely on your support.

Gentlemen, your position as an Association has been so often reviewed both at the meetings of the Branches and at those of the parent Association at Liverpool, Plymouth, and in Edinburgh last August by our distinguished President Dr. John Smith, that you cannot help standing shoulder to shoulder in your thirst for knowledge, in the effort to stem the incursions of disease, and also in the endeavour to elevate your own profession. You have recognised the fact that “unity is strength,” not only physically and morally, but mentally and from a scientific point of view.

The five hundred and upwards who form this Association, of whom nearly 100 belong to our Branch, are the very *élite* of the profession—men of learning, of letters, and of position. They are the men of progress. They do not hold aloof from it as some few do, like hermits sitting in their own cells, thinking they know everything, and can learn nothing from interchange of thought and experience, or selfishly declining to impart their limited knowledge to their professional brethren. But perchance they may be too bashful to join us, and prefer to “blush unseen and waste their sweetness on the desert air.” May we venture to encourage them by another quotation, “There are lessons in brooks, sermons in stones, and good in everything.”

We are above all this, and our motto is “Freely give, as freely ye have received.”

Any profession, any science, any trade, must advance by the constant meeting together of its members. There is nothing like friction for polishing. You find these associations of kindred souls in full operation in the great world of science; in the British Association, which, not content with the British Isles, went to America last year, and many of our members with it. You find a great commingling of idea in the Social Science Congress; in every department of religion, science or art, you find men of light and leading flocking together for consultation and for mutual help. The good of the community must result, as well as benefit to the participator. For every discovery or invention of scientific or practical value is like charity, that blesseth him that gives and him that takes. It has therefore ever been the policy of all scientific associations to make their meetings moveable feasts—of *reason*—in order to stir up the brethren in different localities, and to awaken public interest in their work, that their ranks may be recruited. I am quite sure no dentist can afford not to belong to our Association.

Therefore we heartily welcome you to Nottingham, and we hope to learn much from your visit.

It has been said of surgery, that it is a sorry trade but a noble profession. So is it true of dentistry. So far as our lives are spent in combating and mitigating the sufferings of our fellow-beings, in prolonging life and making it more enjoyable, we are fulfilling a great part of the art of healing. The more faithfully we do our work, the more we know of its capabilities, the more service shall we be to mankind, and the more shall we be ap-

preciated by a grateful public. The dentist will no longer be looked upon as a necessary evil, but will be hailed as a positive good.

Since a President's address is generally looked upon as a quasi-professional and quasi-public utterance, it may be interesting to that public whom we seek to serve, and possibly to some of our younger members, to learn who we are and what our British Dental Association is. Some thirty years or more ago, any one was good enough to be a dentist—just as till lately, any one could keep school. The village blacksmith with his powerful arms and pincers was invincible on a molar—even though it was strong enough to go six times round the room ; the hairdresser or barber, or even some poor doctor who had failed to get on in his own general practice, became the executioner of aching teeth, mostly by guillotine—chopping their heads off ; while the cutler or locksmith, or some other ingenious mind, would undertake artificial work—of whose style many specimens exist in our museums. It is not much more than fifty years since our brethren of the medical profession were in the same plight that we were a short time ago. The surgeon's errand boy was the embryo doctor, and looked forward to the happy time when he too might order salts and senna and syrup of squills.

In the museum of the Odontological Society is an old sign which reads thus :—

THOS. SMITH, Glasier, Let Blood and Draw Teeth att 3. Tea Kittles and Potts, Buckets, Lantrens. Cups to be Handled Heare.

In the year 1815, and in succeeding years, sundry Medical Acts were passed, all tending more or less to the reform and elevation of the medical profession, by demanding that every doctor or surgeon should be registered, and all entering the profession should be properly educated according to a prescribed curriculum, and pass examinations for diplomas before registration. This was a great public necessity—it was monstrous that the public should be unable to distinguish between a quack doctor or charlatan who professed to cure all diseases without seeing the patient, and by means of one bottle of patent medicine, and the scientific and educated man, whose modesty forbade him to indulge in such self-laudation. For the last thirty years the dental profession has been

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g the same process of reformation and elimination. A self-denying and energetic men came to the rescue, foremost among whom was our venerable friend, Mr. John Tomes, who will be known over the whole scientific world for his work as an anatomical and physiological investigator, and it will be always dear in the remembrance of his dentists as the pioneer and champion of Dental Reform. They ranged themselves side by side, and fought our battles thick and thin. I say *our* battles, for these reformers were not for any and above any profit to be derived from their work, except that reward of satisfaction a man feels when he has done nobly planned. I don't think we are half thankful enough to the gentlemen, who in our infancy were doing so much for us, to make the dentist an educated scientific man, who would know his own profession thoroughly. They would pass an examination in arts identical with that formerly required of the student of medicine only. They required an apprenticeship of three years at least to a registered and qualified surgeon, which is in excess of the education demanded of the student, and they required a three year's course of hospital work in medicine and surgery, etc., as well as courses on dental subjects in a dental hospital. This was granted at the College of Surgeons, and a curriculum of study drawn up for its diploma.

At first the profession and the public were apathetic, but they did not unremittingly did these apostles of reform pursue their cause, until in 1878 they obtained the Dentists Act. Not the best Act in the world, but still something. This Act required the registration of all persons practising dentistry. It was not only the big fish, but the little, nay it even went down to minnows and tittlebats, and included also some bacilli and cobwebs—parasites from whom we now suffer. All vested interests had to be recognised, but this was a beginning of the way. No person not so registered on the 1st August, 1879, could use the name or title of dentist or recover fees, and from that date only licentiates in dentistry of the College of Surgeons, or qualified medical practitioners, can register to practise dentistry, *i.e.*, the public have now some guarantee that a dentist who is a licentiate in dental surgery is educated in the profession, professes to exercise, and can ascertain by referring to the Dentists' Register who and what he is.

Having obtained this compulsory education and registration, Mr. Tomes now threw his energies into the formation of our British Dental Association ; for another great evil in the dentistry of the past was the advertisements of the quacks, with their so-called patents, nostrums, and prize medals, their cure-alls, clap-traps, and catch-pennies calculated to gull confiding citizens—who don't like to confess how they get fleeced when in the spider's den.

The College of Surgeons demand of their licentiates a solemn undertaking that they will not advertise or associate their names with anyone that does. I grieve to say that some licentiates, to my knowledge, have treated this—their solemn promise—with contempt. It will become a question whether we ought not to take steps to report them to their college, and call upon it to recall their diplomas. What would the public think of its respected physicians, surgeons, or solicitors, if they began to advertise their wondrous skill and private drugs, their sure and certain private ear of Mr. Justice Law ? It is to be regretted that dental advertisements and show-cases still appear to disgrace our profession. As the public finds out that these emanate from persons of no professional education or standing whatever, and that persons may get positive harm from consulting ignorant men, these baits will cease to allure the unwary, while gradually the Dentists Act will work such men off the Register. And here our British Dental Association comes to the rescue. It is true these advertisers and specimen exhibitors may be on the Register, and can call themselves registered dentists—but our Association admits no man to its ranks who is not vouched for by at least three members to be a respectable and *bonâ fide* dentist. We have no secret or private processes, every one of our five hundred is ready and willing to add to the stock of general knowledge for the benefit of his fellow-men without the slightest payment or reward ; indeed, he considers it a high honour to be able to do so. There is no profession or business, perhaps, which has made greater strides in knowledge and practice in the last twenty years ; in fact this improvement has been coincident with dental reform and elevation, and ought to be a great encouragement to us all to persevere in the good work.

The objects of the British Dental Association include not only the study of dental and the allied sciences, the maintenance of the honour and interests of the dental profession, and the publica-

tion of a periodical journal, but the maintenance of the spirit and provisions of the Dentists Act—for an Act of Parliament is clearly of little use unless it be judiciously enforced. At the last annual meeting of this Branch, at Sheffield, the council and members took occasion to call the attention of the Representative Board to several cases of infringement of the Act upon which they thought action should be taken. From the results of certain prosecutions of unregistered men practising dentistry in Scotland, we have reason to hope the Representative Board are fully alive to their important duties, and that their hands will be strengthened to cope successfully with other cases. It seems to me, however, that one great difficulty in the administration of this Act lies in the constitution of the General Medical Council, which has the supervision of registration and the chief authority. It would not do for us to advocate the abolition of this House of Lords; but it is open to grave consideration whether it would not be considerably to our advantage if it were more representative of our own profession—*i.e.*, if taxation and representation were more proportionate.

Gentlemen,—we have those amongst us who have been 'and are earnest workers in the field of science, who go to the fountain head with their scalpel and microscope, and probe nature to her most secret depths in order to discover if possible the causes of the manifestations of disease. What was known as the germ theory has become a great modern fact. The study of it has in a great measure led to the uprooting of the large class of zymotic diseases, by the increased cleanliness of our dwellings, the improvement of drainage, the abolition of cesspools, pigsties, &c., in our large towns, and the inspection of food—through the aid of our energetic medical officers of health—and also by improved and more rational methods of treatment. Bacilli and micrococci have been found in the mouth, and in the tissue of decayed teeth, as also in alveolar abscesses; and, when it is fully realised how extremely rapidly they multiply, as proved by experimental cultivation, it will be seen how important a bearing they may have in dental diseases.

When will it be as universally recognised that the first stage of digestion commences in the mouth, and that people must have sound and healthy teeth, or endless physic and suffering must result? It is worth while drawing your attention to a very excellent paper read by Dr. Pye-Smith at Sheffield last year. He

said—"The disturbances of the nervous system which are produced not only by diseased conditions of the teeth, but also by the process of eruption, both of the temporary and of the permanent set—lead in no inconsiderable proportion of cases to results many of which would not be credited were not the occurrence attested by undeniable facts. Indeed, there is only one organ, the uterus, which, with its appendages, in any way rivals the teeth in the distant and general complications to which they may give rise." He then proceeds to mention a few of the diseases arising from diseased teeth, amongst which are—neuralgia; spasm, paresis and paralysis of muscles, under the form of clonic spasm of the orbicularis palpebrarum, wry neck, tonic spasm of the masseter, and even tetanus. Strabismus, asthenopia, facial paralysis, paralysis of the arm and leg, infantile paralysis, deafness and amaurosis, convulsions frequently in children, rarely epilepsy, hysteria, delirium, insanity, syncope, interference with the general nutrition of the body, the constant inhalation of foul breath, dyspepsia, constipation, or diarrhoea. Local evidence of reflex malnutrition is seen in such cases as blanching of the hair on the temple, of keratitis, phlyctenular or ulcerative, ulceration of the external auditory meatus, dysuria, leucorrhœa, and abortion, various rashes on the skin, and lastly cases of hip-joint disease, should, according to Dr. Joseph Mulreany, be also included, for he believes almost every ordinary case in young children to be due to the eruption of the first permanent molars.

To this formidable list may be added epithelial cancers of the tongue and lips from ragged edges of teeth, epulis from the irritating margin of stumps, and tubercular disease may also be incited to development by the smallest inflammation setting in motion the germ of miliary tubercle.

Sound and healthy teeth, how shall we get them, and having, keep them?

Yes, how shall we get them? Can you breed sound teeth like you can a particular feather in a pigeon? Those lines, "The sins of the fathers shall be visited upon the children to the third and fourth generation," seem hard, but when you ponder over the hereditary character of form, feature, and disease, you see how true they are. The first step of the infant on the ladder is too often a downward one, the child has not a fair start. How often you find a family with contracted mouths; or you are confronted by a young mouth in a most deplorable state, and the mother

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ringly asks you how it is and what can be done. You don't be personal and say it is too late ; this is the result of an unfortunate marriage, of the immature or impaired constitution of the parents, of tubercular disease, or of a plentiful sowing of wild oats, perhaps a generation or two ago, whose harvest is to be reaped ; or as *Punch* wittily, yet truly put it from the mouth of an old-looking, dwarfed youth, whose parents complained of his stunted, ill appearance—"The fact is, Ma, you ought not to have married Pa ; you would have treated your dogs better." You see this truth exemplified in your children's hospitals daily, and you are powerless to prevent it ; no Act of Parliament could so far interfere with the liberty of the subject as to legislate for proper physical marriages, it is only by drawing attention to it now and again as opportunity serves that possibly something may be done for future generations. The rôle of a social reformer is not a pleasant one. There is a great deal going on now, however, in this matter of social reform, by means of workmen's guilds, girls' friendly societies, &c., mainly supported and led by young ladies. There is one other way in which young men and the community generally might do great good, and that is by giving the cold shoulder to fast young men who lounge in places of amusement sowing wild oats. It is not necessary that his crop should be sown, and it is as monstrous as it is cruel to see a young man having sown them to his heart's content, and then seek the hand of some pure and beautiful girl to marry her down in life with. We can only point a finger to it with mournful regret.

Three possibilities of life are open to all living organisms—Stagnation, Evolution, and Degeneration. It has been held to be a fact that the human race is deteriorating in physical, if not in mental power. Models are constantly exhibited which prove that skulls are becoming more and more contracted ; that wisdom, vigour, and lateral teeth are often absent, and that even the teeth that are present are not nearly so good as they used to be. In 1871 Mr. Spence Bate, at our Leeds meeting said teeth were much more vascular and sensitive now than thirty years ago. The large splendid collection of skulls in the Ruskin Museum at Oxford, shows this degeneration in size of jaw and quality of teeth. If we could find gold plates for those early Britons and other savages, I am sure our fees would have to be materially increased. Where shall we find the cause of this degeneration ? For surely

before prescribing a remedy, we should look to the cause, and if possible remedy it. If a garden be neglected or ill managed, it will go to ruin and decay, degeneration is so easy. It is easy to let things alone, and treat difficulties as they arise. The very laws which build up organic nature contribute to its dissolution. Air, the breath of life, is also the vehicle of corruption, so literally so, that the only way to keep out corruption when life has ebbed, is to keep out air; and if air is so deadly, how much more so are the forces and juices at work in a body seldom perfectly sound in the balance between health and disease. You look round the wards of a hospital, a prison, or a madhouse, and you see there nature squaring her accounts, and you also see very often Nature carrying out her heavy sentences for violated laws. That acute and critical writer, Mr. Sewill, says, "I have never seen a syphilitic child with other than ill-made dental tissues, as evidenced by the early onset and rapid progress of caries. I have therefore concluded that hereditary syphilis always causes dental deterioration, although it may not often leave an unmistakeable mark modifying the external form of the organs." And again, "Characteristics of parents are transmitted as hereditary characters to their progeny, until at length a deterioration commenced in one individual becomes a family defect, and finally, a generation is produced in which the whole apparatus of mastication, teeth, muscles and maxillæ is inferior."

A familiar instance of this degeneration is to be found in the tail-less manx cat. It has been stated that if three generations of a family could be found to keep themselves in a state of perfect health, a good deal of disease might be eradicated. Of course, as practical men, we have to deal with the results of degeneration and decay as they are presented to us; but as a scientific body having a duty to perform to the public and ourselves by the investigation of the causes of disease, we must point out how much of it arises from causes within our own control. You find results of syphilitic and tuberculous disease in bones, arteries, eyes—in almost countless affections, as well as in diseased and irregular semi-lunar and notched forms of teeth. It is not in the scope of an address of this description to go fully into all the contributories to dental lesions, such as cramming children's minds and starving their bodies out of proper play and exercise, the influence of luxuries, foods, intemperance, worry of competition and bad trade, dyspepsia, malnutrition and malassimi-

lation, &c., &c., subjects which so frequently occupy our minds, and which would each form a text for a paper. We may sum up their influence on the teeth by stating that there is a predisposition to dental caries from lack of vital force and nervous energy in the deposition of tooth bone, that interruptions take place in its formation, and destruction of the tissue by chemical agency, decomposition and disintegration supervene.

We don't so much want to grow sound and healthy teeth as sound and healthy children.

A very important point for your consideration and influence has of late come to the front in this connection, and that is the nutrition of mothers and infants. There is nothing grows so rapidly, and requires so much good, wholesome, and nutritious food as a child. This is not astonishing when you consider that it has all its bone, muscle, brain, and nervous energy to build up. It is appalling to think of the wretched bits of odds and ends, the utterly unsuitable food many children have to live on. It is a struggle for existence with scores, and perhaps not always the survival of the fittest—Darwin notwithstanding.

We may pay a tribute of thanks to those whose liberality and forethought have established and carry on children's hospitals, and crèches, where children are well cared for, if only for a short time. And then, if this good, wholesome, suitable, and sufficient food is necessary to the growing child—the future man or woman—ought not good care to be taken of its teeth? And who really cares about them? Those ivory pegs of which mothers are so proud on their appearance are soon neglected and left to themselves to take their chance. For, of what use is food without it can be properly masticated and digested. The first teeth decay away, and are a fruitful source of irritation to the poor children and their mothers. Not many parents think how important it is to stop children's first teeth, and so save them for a few years' mastication just at the most critical time. They decay, and when things get very bad there is sometimes a wholesale extraction, and a clearance of all old offenders, and teeth that *may be* troublesome. Often and often you see the six-year-old molar badly, and hopelessly decayed, and no one has suspected it was a permanent tooth. Mothers receive a real shock, and you have to enter into quite an anatomical lecture as to how the jaw grows backwards because they will insist that the child has never lost a back tooth, and it therefore cannot be a second tooth. If this be true

of the children of the upper and middle-classes how much more is it true of the children of the working-man and the poor. "The backbone of our country."

How very rarely these children get any really careful scientific treatment. How few and far between in the provinces are dental appointments to hospitals and dispensaries, where medical and surgical treatment should be of the best. How frequently are operations on the teeth, requiring great skill and experience, left to the hands of some raw student or dispenser. Again, how very rare are the dental appointments to schools—a most important thing. We have had lately a notice of the appointment of a dentist to the North Surrey District School, in which are 950 boys ranging from 8 to 14. The honorarium is fifty pounds per annum. The duties consist in a weekly inspection, while the school authorities provide all the instruments. This is a valuable appointment, not only to the school and the boys, but to the cause of dental science throughout the country, for here is provided a field for clinical experience and practice whose results can be closely watched. This appointment deserves to be known and imitated by our public and private schools. I hope we shall have periodical reports from the dental officer.

Now, gentlemen, let me welcome you to Nottingham. It is an ancient borough and a pleasant town. Last August we were in stately Edinburgh—that modern Athens, famous for the beauty of its situation, splendid architecture, and seats of learning. Last April our Branch was in Sheffield—famous for its iron and steel manufactures—to-day you meet in a town striving its utmost to combine science, art, and manufacture with education by the establishment and support of the University in which we now sit, by its School of Art and the noble Castle Museum.

I hope our meeting here will be in every way successful, and that we shall have instructive and interesting papers and good discussions, which often bring out the very information we need.

APPOINTMENT.

MR. CHAS. GLASSINGTON, M.R.C.S., and L.D.S.Ed., has been appointed Lecturer on Dental Materia Medica and Therapeutics, at the National Dental College, Great Portland Street.

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REVIEWS AND NOTICES OF BOOKS.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION. S. S. White Company, Philadelphia, 1885.

The contents of this volume are, like those of most similar works, of a somewhat mixed character, containing, however, a considerable amount of interesting and instructive matter.

The volume opens with a notice of the death of Dr. T. L. Smith, who was long connected with the Pennsylvania College of Dental Surgery, and who died after a long and useful life largely devoted to the general interests of his profession. Next follows a report of the President, Dr. Darby, from which we glean—among other matters of interest—that whereas in 1859 there were only four thousand dentists practising in the States, there are now more than twelve thousand; that there are one hundred and twenty dental colleges, including those universities which have dental departments, and that no less than thirty States have laws regulating the practice of dentistry. The report is thoughtful and suggestive, but as it is alluded to elsewhere in this number, it may be passed over here with no more than a word of appreciation.

Dr. H. H. H. contributes a paper on *Pyorrhœa Alveolaris*, in which the use of iodide of zinc is advocated for mopping out the diseased surface. In acute cases peroxide of hydrogen is at first used, and then alone or as a vehicle for iodoform, is also recommended. One point on which the author differs from many others is in advising the patient to refrain from fingering or squeezing the gums during the treatment. It is common for diametrically opposite results to be given, and there are many who believe that, after the removal of all sources of irritation, systematic friction of the gums, by quickening the sluggish circulation, in fact—will, by quickening the sluggish circulation, do more towards promoting healthy action than any other treatment.

In the course of the discussion Dr. Shepard contributed an example of much interest, in the shape of a case in which the disease appeared to have been set up by very slight deposits of mercury in the mouth of a patient who was undergoing a mercurial course, which having been intermitted on this account, was repeated for a fortnight without ill effect, the *pyorrhœa* having been cured by local treatment.

The volume is concluded by a paper on the "Development and

Histology of the Teeth," by Dr. Williams. Our readers will remember that we commented on the style of this paper a few months ago, when it appeared in the *Cosmos*, and that the *Independent Practitioner*, a journal for which we have the highest respect, complained that we had been too severe in our strictures upon the writer for setting forth as original that which was already a part of common text-book knowledge. But on turning to the report of the discussion, we find that we were not alone in taking that view. Thus Dr. Abbott remarked, "Some one, I do not know who, said in Dr. Williams' hearing that the ground he had gone over was almost the same as that which Dr. Black had been over," &c. Dr. Pierce also said, "I feel sorry that the gentleman who read this excellent paper gave so much importance to the views advanced by Dr. Garretson and Dr. Cryer. . . . What I wished to express to you was that the views which Dr. Williams combated so skilfully were given more importance than they were entitled to, for they are not the results of the investigations of Garretson and Cryer, but were advanced by Goodsir, and have been entirely abandoned under the light of more recent investigations," &c.

Nor, on a reperusal of the paper itself, can we find any grounds for modifying the opinion we have expressed with reference to it. Take, for example, such a passage as the following (p. 161): "To this end I shall demonstrate that the teeth are not developed as papillæ in a groove; that there is an enamel pulp or organ which has a definite function," &c., &c. . . . "In answer to the query why these points have not been established before, I can only say that the subject is an exceedingly difficult one to investigate, and, so far as I know, *the specimens which are presented for your investigation this evening are the first and only ones which have ever been produced showing the natural relations of all the dental tissues to each other and to their surrounding tissues without break of continuity.*" It seems to us that it would be hard to attribute to the words we have printed in italics any other meaning than that the author wished it to be supposed that he had had no small share in the exposure of the fallacies in question. Not one word is said of Kolliker, Guillot, Tomes, Waldeyer, or of any of those who have really worked out the subject.

As an example of the slovenly way in which the paper is put together, we may quote the following sentences:—"I quote from Hertwig and Balfour, than whom there are no better authorities

in the world on this subject, who say, in speaking of these placoid scales; 'They consist when fully formed of a plate bearing a spinous projection. They are constituted of an outer enamel layer on the projecting part, which is developed as a cuticular deposit of the epidermis, or epiblast, and an underlying basis of dentine, the lower part of which may be osseous,' corresponding, you see, with the cementum of the tooth, with a vascular pulp in its axis." With all due deference to Dr. Williams, we don't see. But letting that pass, whose authority is he quoting? Is it Hertwig? He wrote in German. Is it a joint work by Hertwig and Balfour? This seems to be implied by the "who say," but we are not acquainted with any such work. Or is it Balfour? And if so, why is not the usual practice followed of giving a precise reference when you quote an author's words?

On page 161 we find, "The photo-micrographs at hand enable me to refute the teaching of Prof. Garretson and others," &c. "As an evidence that I desire to render full justice to Prof. Garretson and my distinguished opponents, I propose to present photo-micrographs, which I think I may safely claim are equal, if not superior, to any illustrations which have ever been produced in support of their hypothesis." We don't know how bad the illustrations to which he alludes may have been, but his microphotographs are in evidence in this volume of *Transactions*, and we do not hesitate to say that they are, one and all, too bad to be of the smallest use for any purpose of proof or argument. Though "in the pure sunlight of heaven, whose swift pencils wrought many of the illustrations which I shall present to-night, in a space of time not exceeding the interval between the diastole and systole of a human heart, I found the agent to do my work," they happen to be just worthless.

There is one view put forward by Dr. Williams which we believe is really original, and which is, perhaps, not unlikely long to remain the exclusive property of the writer. This is, that the enamel cells disappear at a certain period of development prior to the formation of enamel, and that the true enamel cells are a new formation, on the top of which lie the flat layer of cells which go to form Nasmyth's membrane. Dr. Williams' paper is hardly worth the space we have devoted to it, but as our former notice was animadverted upon, we thought it advisable to show that we had good reasons for the opinions we expressed.

A considerable amount of space is devoted to discussions upon

micro-organisms as a cause of caries, and many of the speakers show a thoughtful acquaintance with the subject which renders their utterances worth reading. We notice, however, in the discussion that Dr. Miller and his friends are somewhat severely, though temperately, taken to task for making insufficient or merely depreciatory mention of other workers in the same field. That this should be so is a matter for real regret, for Dr. Miller has done so much thoroughly good work that he can well afford to rest his claims to a place in dental literature upon that which is indisputably his own, and we feel sure that so true an investigator would never wish it otherwise.

In justice to a gentleman whom we have had occasion to pass strictures upon in former years, we must add that as Dr. Atkinson has sometimes appeared at his worst in the issues of the *Transactions of the American Dental Association*, so in this volume he appears at his best. He speaks "in language understood of the people," and what he has to say is well worth the reading; whilst judging from a paper on "Molecular Structure and Force with reference to Nutrition," which has lately appeared in the *Dental Cosmos*, we fear his discarded mantle has fallen upon Dr. J. L. Williams.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odontological Society of Great Britain.

At the usual monthly meeting of this Society, which was held at 40, Leicester Square, on Monday the 2nd ult., Mr. C. SPENCE BATE, F.R.S., President, in the chair.

Mr. OAKLEY COLES showed some excising forceps for upper molar stumps, so shaped that the operator could readily get at the back of the second molar and cut down a wisdom tooth stump to the level of the gum.

Mr. WHITE, of Norwich, presented several interesting specimens to the museum, amongst them the skull of a cat, showing a fracture of the lower jaw, which had united with very slight deformity—an example of what nature could do without the aid of splints.

He also showed a supernumerary upper lateral which he had removed from the mouth of a young man aged eighteen. It had been situated directly behind the normal lateral, and the pressure of the antagonising tooth had caused absorption, laying open the pulp cavity.

He also exhibited models of the mouth of a young lady, aged nineteen, showing eight permanent molars in the lower jaw, the place of the second bicuspid on each side being occupied by a large well developed molar.

Mr. HERN showed a vulcanite piece which had been made by Mr. Ernest Sjöberg, a student of the Dental Hospital, for a patient whose right superior maxilla had been removed in July last at King's College Hospital, by Sir Joseph Lister, on account of a malignant growth. The whole of the bone had been removed, including the floor of the orbit, together with a portion of the cheek; the nasal septum had also been lost. With some trouble a very satisfactory apparatus was fitted, enabling the patient to speak intelligibly and masticate well; but it was found impossible to restore the eye to its proper position, and the patient still suffered from double vision.

Mr. OAKLEY COLES said he had had a good deal of experience in dealing with such cases, and he had found the replacement of the eye by mechanical means in such a way as to restore the axis of vision a hopeless task. He had formerly made such plates of vulcanised rubber, lightening them by putting a piece of pumice, cut to shape, in the centre, but he now always used celluloid. He found paraffin wax the best material for taking the final impressions. It was of great importance that all the surfaces of the plate should be carefully finished off and polished.

Mr. HENRI WEISS said it was most important that in cases where plates had to be made to supply the ravages caused by malignant disease, the greatest care should be taken to avoid every possible source of irritation, since anything of this sort might predispose to a recurrence of the disease. In cases where the deformity was the result of gunshot wounds or other accidents the same extreme care was not so necessary.

Mr. TURNER said it was only since the introduction of rubber for dental purposes that it had been possible to supply apparatus of this sort easily and cheaply, and no doubt lost features could now be reproduced with great success so far as the improvement of the patient's appearance was concerned. At the same time it must not be forgotten that the most important aim to be kept in view was to restore the air passages as nearly as possible to their natural condition. Before these contrivances were as common as they were now, such cases as the one described by Mr. Hern were usually soon carried off by bronchitis or pneumonia. So long

therefore as this important condition was properly fulfilled, æsthetic considerations were quite secondary matters.

Mr. HUTCHINSON said he quite agreed with the opinion expressed by Mr. Henri Weiss, and he thought that it was seldom advisable to mould large portions of the face for patients who had been the subject of malignant disease, since this could not be done without making a somewhat large and heavy piece which must necessarily exert pressure on the surrounding structures, and might thus cause a recurrence of the original disease.

Mr. STORRER BENNETT showed a couple of agate burnishers which he used when filling teeth by the Herbst method. Those he first tried were very easily broken, but these were much stronger. The advantage of using agate instead of steel burnishers was that the latter quickly became coated with gold, and had to be frequently cleaned either on a block of tin or with fine emery cloth, but the agate did not take up the gold, and therefore a good deal of time was saved by its use.

Mr. CHAS. TOMES said he had tried to get Messrs. Ash to make some burnishers for use in the Herbst process by coating burs with their tooth body, but there appeared to be some difficulty in carrying out the idea. He had, however, made himself a very serviceable burnisher by grinding down a tooth quite true in the lathe, polishing and mounting it. It had given him very little trouble to make, and answered the purpose for which it was intended admirably: it could be used for three-quarters of an hour without becoming gilded. He hoped Messrs. Ash would soon place something similar in the market.

Mr. E. CHARLESWORTH then read a somewhat discursive paper "On the Fossil Teeth of Extinct Animals in the Museum of the Odontological Society, with remarks on the value of Dental Characters in the determination of Life Periods in the ancient Fauna of the Globe."

After some introductory remarks on the importance of Biology as a branch of study, and on the value of museums in promoting the spread of a knowledge of this subject, Mr. Charlesworth went on to say that his object was to increase the interest taken by the members in their own valuable museum by calling their attention to one section of it, viz., the fossil teeth. These formed but a very small part of the collection, but amongst them were specimens of the teeth of four extinct animals of considerable interest and importance. There were several teeth of the gigantic fossil

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th which must have belonged to an animal 70 to 80 feet about twice the size of any sharks now met with. Then the specimens of the teeth of the Mammoth, or Siberian of the Mastodon, and a portion of the jaw of the idon, an extinct hippopotamus which had six front teeth, its name; the hippopotamus now extant having only four h.

Charlesworth then proceeded to comment on these specimens, pointing out, with the aid of diagrams, their characteristic as well as those of the animals to which they had belonged, relations of the latter to existing genera. An examination of extinct animals afforded valuable aid towards determining their zoological position and natural affinities; but it was a caution which must not be relied upon too exclusively. In one of the mistakes which even well-known men might thus do, Mr. Charlesworth gave an amusing account of a controversy which took place some years ago between Sir Richard and Chas. Lyell, and other eminent geologists, over some bones which were found in the London clay near Woodbridge in which one authority asserted to have belonged to an elephant and another to a monkey, whilst a third declared that they belonged to an extinct animal having no relation to either of the creatures named. No mammalian remains having up to that time been found in the London clay, the statement that they had been discovered of an animal so high in the scale as the elephant of course caused great excitement.

In the conclusion of the paper, there being no time for any discussion, the PRESIDENT proposed a vote of thanks to Mr. Charlesworth, and to the contributors of specimens and casual communications, and announced that at the next meeting Mr. H. St. John, F.R.C.S., would read a paper on "Injuries and Diseases of the Jaws of Animals."

The Odonto-Chirurgical Society.

The annual Meeting of this Society was held at its rooms, 30, St. Andrew's Street, Edinburgh, on Friday, the 13th ult., Mr. ANDREW L.D.S.Ed., President, in the chair.

The Treasurer presented his report which showed an income of £100 6d. from members' subscriptions; interest on cash on hand and cash in Treasurer's hands and at bank, made up a

total of £142 2s. 4d. The expenditure had amounted to £38 9s. 10d., leaving a balance of £103 12s. 6d., of which £95 remained on deposit at interest.

The Librarian and Curator also handed in his report, stating that the Museum and Library had received important donations during the past year from Sir Edwin Saunders and others.

On the motion of Mr. Campbell, seconded by Dr. Smith, the following gentlemen were elected as office-bearers for the ensuing year :—

President, Mr W. Bowman Macleod, L.D.S.Ed. ; Vice-Presidents, Dr. W. H. Williamson (Aberdeen), and Mr. John A. Biggs (Glasgow) ; Treasurer, Mr. Malcolm Macgregor, L.D.S.Ed. ; Secretary, Mr. John S. Amoores, L.D.S.Eng. ; Curator and Librarian, Mr. George W. Watson, L.D.S.Ed. ; Councillors, Mr. Andrew Wilson, L.D.S.Ed. ; Mr. J. Moore Lipscomb, L.D.S.Eng., Mr. James Mackintosh, and Mr. E. A. Cormack, L.R.C.P. & S., and L.D.S.Ed.

The PRESIDENT then vacated the chair, and read the paper upon "The Missing Incisors in Man, Which are they?" which will be found at p. 241.

At the conclusion of this paper, Mr. MACLEOD read one which he had received from Mr. Oakley Coles, upon "Congenital Alveolar Fissure," which was rendered additionally interesting by the exhibition of a large number of models which Mr. Coles had forwarded for the purpose of illustrating the cases referred to in his paper.

Mr. MACLEOD said that at the beginning of the Session he had intended to bring this subject before the Society at the February meeting, and had collected matter for this purpose, when he learnt that Professor Turner was engaged in the same investigation, and was preparing a paper for the Royal Society of Edinburgh. He therefore made over the cases in his possession to Professor Turner and supplemented these with several which, through the courtesy of Messrs. Hutchinson and Willoughby Weiss, he had obtained from the Museum of the Odontological Society in London. The cases enumerated in Mr. Coles' paper could not be got ready in time for Professor Turner's paper, and might therefore be looked upon as supplementary to it.*

* The first portion of Professor Turner's paper appeared in the last number of this Journal (p. 167) ; it is concluded at p. 232 of our present issue.

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then proceeded to read Mr. Coles' paper (see p. 243). the conclusion of the paper the members adjourned to the room, where Mr. Watson exhibited the models illustrative of two papers by means of an oxy-hydrogen lantern, kindly y Dr. Walker, of London, by means of which a representation could be thrown direct from the model upon the screen. e members having returned to the meeting-room, the President invited a discussion on the subject of the papers which had been read.

SMITH said some of the questions with reference to the intermaxillary bone, discussed in these very interesting papers, had agitated for ages, and came in very appropriately along Mr. Wilson's communication on the missing incisors in man, e determination of which incisor was suppressed had in ways an interesting connection with the situation of the submental fossa. Philosophic anatomists had generally accepted the theory that, in accordance with the laws of unity in development, intermaxillary bones existed during one period of development in man; the indication of the remains of a union on each side of the incisive canal in the palate being considered to mark the limits of the intermaxillary bone. During development of the embryo it would be recollected that in the successive changes undergone by both the dorsal and visceral arches of the primitive groove, that portion of the visceral arch forming the face and neck becomes cleft across, so that the arches are termed the visceral arches are formed. From the upper part of the one partly giving rise to the nasal and orbital structures projects downwards a process called the fronto-nasal process, and which hangs down between the two projections on each side, which are the rudiments of the upper jaw. The outer part of the fronto-nasal process on each side subsequently fuses with the superior maxillary processes, and on ossification taking place the interposed intermaxillary bone is the result. But in the human palate it is supposed that this coalescence, from various causes, does not take place, and that the bones remain in an embryonic separate condition. There is therefore one point kept in mind here in reference to the absence of the lateral incisor from the intermaxillary bone, or its representative, in cases of the human palate being considered an indication that the fissure is not formed between the central and lateral incisor, inasmuch as the interference with the coalescence of parts may have led to arrest

of this incisor's development. On the other hand, it is just possible in this very early and rudimentary condition of parts, that what is termed the external nasal process might by any unusual projection downwards become so interposed between the fronto-nasal and maxillary processes as to become in this position a seat of dental development between the true intermaxillary and maxillary bones, forming, in fact, the mesognathion of Albrecht. Dr. Smith had about 20 years ago worked at this subject with the late Professor Goodsir. Altogether it was a difficult problem, and he hesitated very much in adopting any conclusion as definite in regard to the manner in which the abnormal conditions of this region were produced. He considered Mr. Wilson's observations in reference to the disappearance of certain teeth and its premonishment in the human jaw as of much interest.

A somewhat animated discussion then arose, in which several members took part, regarding the suppression of the lateral incisor, and the frequent appearance of this tooth in the jaw in a malformed and stunted condition ; it being upheld by some that these facts clearly pointed towards an ultimate total suppression, it sharing these peculiarities with the wisdom tooth. One member, who spoke from long experience, had not noticed more than some three or four cases of suppression during his years of practice, and he believed that in most instances their absence was due to non-eruption and not to non-development. The consensus of opinion was, however, against this view, as most of the members had met with, comparatively speaking, frequent cases of suppression of the lateral, and had often noticed their appearance in a stunted and rudimentary condition.

In replying, the PRESIDENT said that he quite agreed with what Dr. Smith had said as to the inadvisability of founding any theory on cases of interrupted development, and in his paper he had only referred to Professor Turner's paper as corroborative evidence. The mere fact that such imperfect development of the maxillæ interfered so little with the normal number, form, and size of the incisors was surprising, as naturally they might have expected to find dwarfing or even suppression, certainly not any increase in number. As regarding Mr. Campbell's remarks, he could only say that the fact of organs becoming rudimentary previous to disappearing was generally accepted by both physiologists and naturalists, and in its special reference to the teeth, they had abundance of evidence as to its accuracy in the dental anatomy of

the other mammalia. Mr. Campbell's experience as to the suppression of the upper lateral incisor was very different from his, as he found it a not uncommon occurrence. In one family alone he had found *five* cases of total suppression. As to saying that they were only non-erupted, he certainly had neither seen nor heard of impacted laterals, and he very much doubted Mr. Campbell's agreeing with him, if he were to say that, founding on those cases showing the typical mammalian number, six were always present, only that in the great majority of mankind so many of the number were non-erupted.

There then followed in an adjoining room a very interesting exhibition by Mr. Watson of microscopical preparations of Dental Histology and Pathology by means of his lime-light lantern. The instrument itself was novel, and the arrangement connected with it, by means of which the necessary gases were supplied, were very simple and effective. The lantern was so constructed as to show either micro-photographs or the object itself as mounted upon the slide in the ordinary way. With a $\frac{1}{2}$ inch or $\frac{1}{4}$ inch objective, the projection was all that could be desired, but with the higher powers the results were not so satisfactory.

Mr. Watson exhibited a large number of slides, commencing with sections of the foetal jaw, showing the developing tooth germs and the dental tissues in different stages of calcification, and passing on from these to preparations of the fully formed tooth, and then to the structures of these tissues under various pathological conditions.

He also showed several slides illustrative of the principal types of dentine and enamel, as met with in comparative dental anatomy, and concluded with sections of epulis and tumours taken from the jaw. As each slide was passed through the field, Mr. Watson made remarks pointing out the special points of interest and otherwise explaining the nature of the structures exhibited.

On the motion of the PRESIDENT, the Society thanked Mr. Watson warmly for the trouble and labour he had taken upon himself to render this exhibition a successful one, and they also desired to thank Mr. John J. Andrews (Belfast) and Mr. Amore for the loan of some slides they had lent for the occasion; and congratulated Mr. Andrews upon his success in preparing some very fine slides illustrating the development of the tooth germs.

The members having returned to the meeting-room, Mr. WILSON said that before vacating the chair, he had to thank the

Council for their valuable assistance in carrying on the affairs of the Society during his term of office, as also the members generally, for their lenient judgment. While claiming no decided advance, they had, at least, upheld the position of the Society as a scientific body. Knowing as he did, what the energy and business qualities of his successor were, and what he had done for the profession in other fields, he had very great pleasure in moving that Mr. Bowman Macleod now take the chair.

Mr. MACLEOD, on taking the chair, made a few appropriate remarks, thanking the Society for the great honour they had that day conferred upon him by electing him as their President.

Dr. WILLIAMSON exhibited a model of lower teeth, showing the mechanical effect of the use of a penknife as a toothpick. The patient, a man of about 60 years of age, had got into the habit of removing tartar from between his lower front teeth with a penknife, and had produced a series of pointed arches from canine to canine.

Also a specimen of a cavity on the labial surface of a front tooth, filled with Williams' platinum and gold foils, No. 3, the darkest shade, the colour produced being of a soft grey, and not so conspicuous as a pure gold filling.

Mr. REES PRICE showed a model of the upper jaw of a patient who had come into the hands of Mr. James Cameron of Glasgow. The woman was about 30 years of age, and had the gums much thickened, and full of decayed stumps. In the region of the right canine and lateral, Mr. Cameron had extracted ten little supernumerary teeth, some of which were very perfect in appearance.

The PRESIDENT then announced that the next meeting would take place early in November, probably upon the 12th, and closed the proceedings.

THE DINNER.

The Annual Dinner of the Licentiates in Dental Surgery, and members of the Odonto-Chirurgical Society, took place the same evening at the Balmoral Hotel, Princes Street, Edinburgh, Mr. Robert Reid, L.D.S. Eng., in the chair. Amongst those present were Dr. John Smith, President of the Royal College of Surgeons of Edinburgh; Drs. D. R. Haldane, Littlejohn, and David Wilson, and most of the Edinburgh dental practitioners, together with Messrs. Williamson (Aberdeen), J. A. Biggs (Glasgow), W.

Campbell, and J. Fisher (Dundee), Norman McQueen (Hamilton), Stirling (Ayr), &c.

The usual patriotic toasts having been given by the Chairman, Dr. WILLIAMSON proposed "the Dental Diploma." It had been contended, he remarked, by some, that dental surgery, being but a speciality of general surgery, should only be practised by those who had obtained a surgical diploma. But a man who had obtained a surgical degree was practically unqualified to practise dentistry, whilst a man who had passed through the dental curriculum would be quite as well prepared for his special work as the newly-fledged medical graduate was to enter on the duties of general practice. The dental qualification was therefore the most important, though if time and opportunity permitted, a surgical degree might with advantage be added, since it gave the possessor a higher professional standing, and afforded evidence of a wider range of general medical culture. But however valuable the education of the head might be, that of the hands was, to a certain extent at least, almost more important; this should form the very commencement of dental education and should be continued throughout the curriculum. This manual training would, he hoped, be developed more and more by the practical tendencies of modern teaching.

Dr. LITTLEJOHN in proposing "Prosperity to the Odonto-Chirurgical and sister Societies," said he was sure no Society had vindicated its right to be well toasted better than the Odonto-Chirurgical Society, since it had well fulfilled its chief condition of existence, the advancement of the scientific interests of the profession. He coupled the toast with the name of their new President. Mr. Bowman Macleod was the very embodiment of energy, and under his guidance he (Dr. Littlejohn) augured for the Society during the current year a large measure of success.

Mr. MACLEOD having replied,

Mr. REES PRICE proposed "the Licensing Bodies." These corporations were of remote antiquity; their history was inseparably bound up with that of the progress of medical science and education; and, above all it was to the surgical corporations that the dental profession largely owed its present position. The future of the profession also rested to a great extent with the licensing bodies. It must be a satisfaction to all to see the position which the Royal College of Surgeons in Ireland had lately taken up on revising its curriculum. Though all would not agree

with the College in substituting attendance at a public dental laboratory for two years in place of three years' pupillage with a qualified dental surgeon, yet it could not but be admitted that a distinct step forward had been made, in so far as the curriculum provided that there should be three professional examinations through which the student must pass at different periods of his study. In Scotland, at present, the candidate had the option of passing the two required examinations at one time; but he hoped the day was not far distant when that option would be taken away, and that it would be compulsory upon the candidate to pass the examinations separately. Not only this, but that the first professional examination for the dental licence—the examination in anatomy, physiology and chemistry—would be equal in every respect to that required from the student for the general licence. He coupled the toast with the name of Dr. Smith, who was well known, not only to dental surgeons, but as President of the Royal College of Surgeons of Edinburgh, and as President of the British Dental Association. From his work on behalf of the dental profession, he felt fully assured that the interests of the licensing bodies were in safe hands, well able to help them in what might be termed a struggle for existence with an Act of Parliament.

Dr. JOHN SMITH regretted the absence of Dr. Patrick Heron Watson, who was to have answered to this toast, but he fully appreciated the compliment and the kindly feeling which had been expressed towards the licensing boards by the body which was associated with them now by means of the dental diploma. He referred to the important changes which had occurred during the year in the working of the licensing bodies, and said he believed all these changes had been for the better. He was sure they would agree with him in feeling a satisfaction that these bodies had been placed in a position much better than they ever enjoyed before. Changes were necessary in any of the progressive sciences, and changes in the examining and teaching bodies connected with these sciences were equally necessary; but the consideration of these required a great deal of prudence and time before they were accepted as wise changes, and changes which would be for the benefit of the licensing bodies. He would only further say that in the probable event of still further legislative changes being effected, which was very likely to occur, it would be well and more seemly if Scotland, seeing the wider experience she had in educational matters generally, were consulted to a greater extent than she had been on the question of medical reform.

Dr. D. R. HALDANE proposed "The Edinburgh Dental Hospital and School." He contrasted the facilities given now for practical instruction in medicine as compared with what they were when he commenced to study. At that time, he said, practical instruction was a thing unknown. Nowadays courses of lectures, instead of being the principal mode of teaching, were looked upon as comparatively unimportant. Real knowledge in medical subjects was obtained at practical classes. Having referred to the Dentists Act, he said that it was almost a necessary consequence that a dental school should be established, and nowhere was a dental school more necessary and more likely to prosper than in Edinburgh. Such a consummation had taken place. The Dental Hospital and School had been established, and was progressing in a most satisfactory manner. The scheme on which it was founded was certain to progress, and as Edinburgh had been so distinguished for its medical school in other respects, he had no doubt in the course of a few years the dental school of Edinburgh would be equally distinguished.

Mr. MACKERSY, the Hon. Sec., in the course of his reply, spoke of the necessity of enlarging their present accommodation at the hospital. The committee had considered the question of procuring a site and building a new hospital. He urged on those present the propriety of helping them in this scheme, and said if it was carried out it would be an ornament to the city and of immense importance to the profession.

Mr. JOHN A. BIGGS gave the toast of "The British Dental Association." He said the Association was beginning to assert itself in a very efficient manner for the protection of the interests of the profession, and he failed to see how any registered dentist could afford to remain unconnected with it. He hoped the day was not far distant when one and all would band themselves together under its auspices for their mutual protection.

Dr. SMITH, in replying, said he thought some alteration in the rules of the Association might advantageously be introduced, whereby no private individual—no dentist, should be called upon to perform so invidious a duty as to prosecute an irregular practitioner, because that action might be imputed to motives of professional jealousy. They knew how much Mr. Macleod had suffered in that respect; and he thought their Association should have a legal official for such a duty if it could not be performed by the public prosecutor.

Mr. AMOORE proposed the health of the Chairman, which was very warmly responded to, and Mr. E. A. CORMACK that of "The Croupier," which brought a very pleasant and successful evening to a close.

The Dental Hospital of London.

THE twenty-seventh Annual General Meeting of the Governors of the above Institution was held at the Hospital, at Leicester Square, on March 12th. Sir James McGarel-Hogg, Bart., K.C.B., M.P., one of the vice-presidents, presided, and was supported by Sir E. Saunders, Dr. Walker Messrs. G. A. Ibbetson, James Parkinson, Thomas A. Rogers, S. J. Hutchinson, T. Underwood, S. W. Sibley, M. Durlacher, W. F. Forsyth, William Ash, Robert Hepburn, Morton Smale, G. Gregson, Oakley Coles, &c.

The Secretary (Mr. J. F. Pink) submitted the report, in which the Committee announced that the year under review had been one of prosperity. The total amount received for the general fund during the year was £1,662. The expenditure had amounted to £1,360, and out of the balance £250 had been transferred to the Extension Account. The committee had during the past year been enabled to reduce the mortgage debt on the Hospital by £1,500; they regretted, however, that there was still a deficit of £3,471 3s 11d. in the extension account, and they were reluctantly compelled to make a further special appeal for the funds necessary to pay off this encumbrance which pressed so heavily upon the financial resources of the Charity.

The Managing Committee regretted to have to report the resignation of the Chairman of the Committee, Mr. J. Eric Erichsen, owing to other engagements rendering it difficult for him to give the amount of attention to the affairs of the hospital he considered he ought to bestow upon them. They had, however, obtained the consent of Mr. Septimus W. Sibley to act as Chairman, and Mr. H. M. Phillips had consented to fill the important post of vice-Chairman. The Committee recorded their obligations to the medical officers for the zeal they had shown in the performance of their duties, which had tended so much to the usefulness and prosperity of the Hospital during the past year.

The report of the Medical Committee showed that the total number of operations performed last year was 38,304, being 2,726

in excess of the previous year, and the highest on record since the opening of the Hospital. In consequence of this increase in the number of cases treated, it had been found necessary at the desire of the Medical Staff to purchase six additional operating chairs.

Mr. G. A. IBBETSON (Hon. Sec.) moved the adoption of the report and accounts, which was seconded by Mr. PARKINSON, and agreed to.

On the motion of Mr. T. A. ROGERS, seconded by Mr. HUTCHINSON, it was then resolved: "That the following gentlemen recommended for re-election by the Committee of Management—viz., Messrs. Samuel Cartwright, Robert Hepburn, James Parkinson, A. J. Woodhouse, T. H. Hills, G. Lambert, J. R. Turle, and A. Willett be re-elected, and that the names of Messrs. G. H. Bailey and J. Smith Turner be added to the Committee."

Mr. PARKINSON then moved, and Sir E. SAUNDERS seconded the following resolution:—"That the Governors of the Dental Hospital of London receive with much regret the resignation of the Rev. G. B. Twining as auditor, and beg to accord him their best thanks for the very efficient and able manner in which he has for so many years discharged the duties with so much benefit to the interests of the Hospital." The resolution having been carried,

Mr. G. C. ASH was re-elected auditor, and in the place of the Rev. G. B. Twining, Mr. F. A. Burrows was elected an auditor, after which Mr. R. C. L. Bevan (the treasurer) was re-elected.

The meeting then, on the motion of Mr. ROGERS, seconded by Mr. UNDERWOOD, accorded their vote of thanks to the treasurer, the chairman, vice-chairman, committee of management, medical officers, auditors, and hon. sec. The house and finance committees also received a cordial vote of thanks for their attention to the affairs of the Hospital.

Sir EDWIN SAUNDERS said that there yet remained one duty to be discharged, and that was a most agreeable one: it was to express their thanks to the Chairman for his kindness in presiding at their Annual Meeting, and for the prompt and gracious manner in which he had responded to their invitation. It was not without some misgiving that they preferred that request, as they remembered the varied and multitudinous demands upon his time, not only in the legislative chamber, but as the guiding spirit at that other council board which charged itself with the safety, the salubrity, the convenience, and the architectural adornment of their too large Metropolis.

Mr. HUTCHINSON seconded the motion which was carried unanimously.

The CHAIRMAN, in acknowledgement, said he was extremely obliged to the meeting for the vote of thanks they had been good enough to pass. He had been told that he was a busy man, which was true ; but he was always pleased to be able to find time to do any good work he could. He knew that that Hospital had been very useful indeed, for he knew a great many poor persons who had derived the greatest possible benefit from the operations performed upon them at that Institution. Every one must admit that in order to preserve health it was necessary to be able to masticate their food, and that those who could not do so were the victims of dyspepsia and a variety of other diseases. Those who were well off were enabled to go to a first-rate dentist and get advice and assistance, and they must all know the advantage they derived therefrom ; but those who were poor could not do so, and it was a duty, therefore, to help the Committee in carrying on the excellent work the Hospital was pursuing, not only in relieving the suffering poor, but really in preserving life. The large number that had been relieved by means of that charity during the last year was a convincing proof of the great benefit it was to the public. As the Institution became better known he felt sure that increasing numbers would come to obtain relief ; therefore, he fully concurred in the view that had been expressed that a great effort should be made to obtain additional help. He did not know what steps the Committee were going to take to wipe off their debt, but having seen the hospital, and appreciating the good work it was doing, he would be very glad to give ten guineas as a start to a special appeal to wipe off the debt.

The Dental Manufacturing Company.

THE Annual General Meeting of this Company was held on the premises, 3, 4 and 5, Little Windmill Street, on the 7th ult. ; Mr. D. D. Hepburn in the Chair. A satisfactory report was presented, showing a steadily increasing business, and the usual five per cent. dividend declared. A resolution was also passed sanctioning a further call of £2 per share, making £18 called up ; the last call was in 1879. It was stated that an amount sufficient to have added another two per cent. to the dividend had been expended out of revenue in increasing the company's plant.

MINOR NOTICES AND CRITICAL ABSTRACTS.

The Relation of the Alveolar Form of Cleft Palate to the Incisor Teeth and the Intermaxillary Bones.

BY PROFESSOR W. TURNER, M.B., F.R.S.

(Concluded from p. 173.)

THE casts above described are fifteen in number, and of these eight are left-sided, four right-sided, and three double clefts. The greater frequency of the alveolar cleft on the left than on the right side is in accordance with previous observations on the same subject, for Th. Kölliker states* that of 165 cases of one-sided cleft recorded in teratological literature, 113 were on the left side, and only 52 on the right side. It would seem, therefore, as if in this region of the face the development of both the bones and soft parts is more likely to be incomplete on the left than on the right side of the mesial plane.

In the eight specimens of left alveolar cleft with one exception, in the four right alveolar clefts with one exception, and in the three double clefts also with one exception, a precanine tooth existed in the interval between the canine and the cleft, although it was in three cases displaced to the palatal side of the canine, so that in only three of the fifteen specimens did the canine tooth form the immediate boundary of the cleft on its outer side. In the specimens of single cleft in which a precanine was present on the side on which the cleft existed, two, three, and in one case four incisors were situated in the intermaxillary region between the cleft and the canine on the opposite side. In one of the cases of double cleft, four large incisors projected from the conjoined intermaxillaries, and, in addition, a precanine tooth was present on each side.

In his elaborate and important memoir on the development and anatomy of the intermaxillary bones, Dr. Th. Kölliker has given an account of the relations of the teeth to the alveolar fissure or fissures in forty-nine wet or dry preparations which he has examined in several of the museums in Germany. Twenty-eight of these specimens had a cleft on both sides, sixteen had the cleft on the left side only, and five on the right.

* "Ueber das Os intermaxillare des Menschen und die Anatomie der Hasencharte und des Wolfsrachens," *Nova Acta der Leop. Carol. Akad. der Naturforschen*, Bd. xliii., Halle, 1882.

In the sixteen left-sided clefts there was no tooth in two specimens between the canine and the cleft. In fourteen specimens such a precanine tooth was present; in nine of these cases this precanine coexisted with three incisors situated on the opposite side of the cleft, so that, including the precanine, the incisors had the normal number, four; whilst in the remaining five cases this precanine was an additional tooth on the side on which the cleft occurred, and the number of incisors was raised to five.

In the five right-sided clefts there was no tooth in two specimens between the canine and the cleft; in one a precanine coexisted with three incisors on the opposite side of the cleft; in one the precanine was an additional tooth on the side on which the cleft occurred, and the number of incisors was raised to five; in one very remarkable specimen no less than three precanine teeth were interposed between the right canine and the cleft, and four incisors were situated between the cleft and the left canine tooth, so that the teeth lying between the opposite canines were seven in number.

In the twenty-eight specimens of double cleft, there was no tooth in six specimens between the canines and the clefts; in three specimens a precanine was present on one side only; in nineteen specimens the precanine was present on both sides. In some of these nineteen specimens the precanine brought the incisors up to the normal number, four; but in other specimens it formed an additional tooth in the incisor series, and in five specimens there were six teeth interposed between the opposite canines, viz., four in the isolated and projecting intermaxillary bones, and one on each side between the canine tooth and the cleft.*

Dr. Kölliker's forty-nine preparations and my fifteen casts make in all sixty-four specimens in which the relations of the alveolar cleft to the teeth have been definitely observed. These specimens resolve themselves into two groups—*a*, one in which no precanine tooth intervened between the canine and the cleft, and in this group were thirteen specimens; *b*, one in which a precanine was situated between the canine and the cleft, and this consisted of fifty-one specimens. Obviously, therefore, much the larger num-

* Professor Humphry, in his well-known treatise on the Human Skeleton, has figured (plate xiii. fig. 1) a specimen of double cleft palate in the human skull. On each side a precanine tooth had erupted, which he describes as a supernumerary canine.

ber of persons with the alveolar form of cleft palate possess a tooth in front of the canine, which is cut off from the incisor series of teeth by the gap in the border of the jaw. The question therefore arises as to the nature of this precanine tooth.

A well-known principle has long been accepted by anatomists, that all the teeth situated in front of the canines are incisor teeth, and that all those teeth which occupy this position in the upper jaw are implanted in the intermaxillary bones. Hence, the expressions incisor and intermaxillary are synonymous terms for these teeth in the upper jaw. If this principle be applied to the determination of the nature of the precanine tooth in alveolar cleft palate, it would have to be called an incisor tooth. But the precanine is cut off from the other incisor teeth by the cleft in the border of the jaw, and it would therefore follow that the intermaxillary bone would also be divided into an inner and an outer portion by the cleft, that the precanine tooth would be situated in the outer division of that bone, and that the cleft would lie, therefore, between the two divisions of the intermaxilla, and not between the inter and superior maxilla. This is the position assumed by Dr. Albrecht, and granting the accuracy of the principle that all precanine teeth are necessarily intermaxillary in their implantation, the specimens belonging to group *b* might all be cited in support of his position. The specimens of double cleft palate in which four incisor teeth projected from the intermaxillary bones (case 13), and a precanine tooth also existed on each side, are in no way opposed to this position, although the presence of the normal number of incisors in that region, which is undoubtedly intermaxillary, might at a first glance seem to be so. For not only is six a very common number of upper incisors in various mammals,* but, as is well known to dental surgeons, three incisor teeth are sometimes developed on each side of the human upper jaw when there is no alveolar cleft. I have now before me the casts of two otherwise normal palates taken from

* From the investigations of Mr. Spence Bate, published in *Trans. Odontological Soc. London*, vol. v., it would appear that in the mole, *Talpa europæa*, four teeth are developed in each intermaxillary bone, an example, therefore, in a placental mammal of eight upper incisors, though Mr. Spence Bate himself speaks of the outermost incisor as a canine tooth. The case related by Dr. Th. Kölliker, in which seven teeth were situated in the human upper jaw between the opposite canines, is therefore an approximation to the arrangement in the mole.

different persons by Mr. Andrew Wilson, L.D.S.—one with the milk, the other with the permanent dentition, in each of which six upper incisor teeth had been developed. The question therefore naturally arises, Which of these teeth is suppressed in the normal incisor dentition in man? Some light is thrown on this question by these cases of alveolar cleft. In the cases of double cleft, with two incisors in each half of the projecting intermaxillaries, these teeth would be in dental notation In_1 , In_2 , whilst the precanine would be In_3 . But in many cases of alveolar cleft, more especially when it is one-sided, only one incisor tooth exists between the mesial suture and the cleft, whilst a precanine is present on its outer side. The precanine, as in the preceding example, would be In_3 , whilst the incisor situated mesially to the cleft would be in the majority, if not all, of cases without doubt be In_1 ; the suppressed incisor therefore would be In_2 , and it is not unlikely that in normal human dentition the incisor which does not develop is also In_2 .

This view of the homology of the precanine tooth and of the normal lateral incisor—viz., that it is In_3 —is also advocated by Dr. Albrecht.* Dr. Th. Kölliker, however, has not apparently formed any exact conception of its homology; for although he sometimes refers to it as In_3 , at others he speaks as if it represented the ordinary lateral incisor, which incisor he obviously regards as a different tooth from In_3 .

Moreover, Kölliker disputes the position that the relation of the teeth to the cleft in alveolar cleft palate can enable us to determine whether the cleft is a gap in the intermaxillary bone or a cleft between the intermaxilla and the superior maxilla. For the teeth and the jaw are, he says, quite independent of each other in the early stages of their development, and only become related to each other secondarily, as the processes of tooth formation and bone formation respectively advance. The independence of these two processes in their early stage will, I should say, be generally admitted. No one probably would, from the study merely of such a series of casts as I have described, without at the same time having had the opportunity of examining the jaws, have come to the conclusion that the cleft was not, as Goethe taught, in the maxillo-intermaxillary interval, but, as Albrecht now teaches, within the intermaxillary bone itself. Though

* *Sur les os intermaxillaires, &c.*, Bruxelles, 1883.

the fact that, in so large a proportion of the casts, an incisor tooth was situated on the canine side of the cleft could scarcely be without some significance, and from the frequency of its occurrence, should not be regarded as a mere accidental displacement of a tooth germ.

Albrecht has, however, had the advantage of examining several skulls in which the alveolar cleft was seen to separate the intermaxilla into an inner and an outer part, each carrying its appropriate incisor or incisors. In addition to the skulls of the horse and the calves referred to in his first essay on this subject, he has since described and figured an adult human skull in the University of Kiel, in which a right cleft existed in the corresponding intermaxilla, and the right maxillo-intermaxillary suture co-existed with and was quite distinct from the cleft; a new-born infant with a double cleft, in which the same suture was present; the jaw of a child about one year old, in the museum at Ghent, in which, with a left cleft in the corresponding intermaxilla, a left maxillo-premaxillary suture was present. In all these cases the part of the intermaxilla which was situated to the outside of the cleft contained the socket for the precanine incisor. One must therefore accept the conclusion, that the anatomical evidence justifies the statement that, in a proportion of cases of alveolar cleft palate, the cleft lies within the intermaxilla, the cleft coexists with the maxillo-intermaxillary suture, and an incisor tooth is situated in the interval between the cleft and the canine of the same side.

But I have stated in an earlier part of this paper that there is a group of cases (*a*) of alveolar cleft in which no precanine tooth intervened between the canine and the cleft. In some of these only two or three incisors were present, but in others four incisors were situated in the region between the cleft and the opposite canine. It is not improbable that these cases may be examples of a cleft occurring in the plane of the maxillo-intermaxillary suture, and not within the intermaxilla itself. Wherever a suture exists, there, of course, a possibility of an imperfect union of the two bones may arise. Should the bones remain separate, and should the want of union be accompanied by a non-closure of the superjacent soft parts, then the imperfect development would lead to the production of a cleft in the alveolar region, and the theory of Goethe would therefore be applicable to such cases.

For many years the existence of the intermaxillary part of the

human upper jaw as an element distinct from the superior maxilla rested rather on general anatomical considerations than on embryological data. Even so recently as December 1858, M. Em. Rousseau, in a paper in the *Comptes Rendus*, was of opinion that, in the normal ossification of the upper jaw, there was no evidence that the intermaxilla had a centre of ossification distinct from the superior maxilla, and a similar view was expressed by Dr. Cleland.* Dr. Joseph Leidy had, however, published some years previously† a short account of a dissection which he had made of a human embryo 1 inch 11 lines in length from vertex to heel, and which he believed to be nine or ten weeks old. He found the intermaxilla in apposition with the superior maxilla for $1\frac{1}{2}$ ds of a line; but they were easily separable at this period along the plane of a suture which passed through the alveolar ridge between the incisor and canine alveoli, and which divided the nasal process into two nearly equal portions. Dr. Leidy's observations did not, probably owing to the periodical in which they appeared not having much circulation in Europe, for many years attract attention. Mr. G. W. Callender furnished some important observations on‡ this subject several years afterwards. He described in a foetus, 2·3 inches long, a smooth plate of bone as passing forwards from the base of the nasal process of the superior maxilla, and he called this plate the "incisor process." The intermaxilla, he stated, "consists of deposits of bone about the posterior edge of the incisor process, which subsequently grow down to form the plate of bone on the inner side of the middle incisor socket, and the posterior wall of the incisor sockets below and internal to the course of the incisor branches of the dental nerve." In a foetus 4·4 inches long, "the intermaxilla is completely formed, and may be traced as a distinct bone." It forms the front of the palate, and fills up the notch between the incisor and palatal processes of the superior maxilla; it also possesses "a narrower portion, which ascends and fits by a convex surface into the groove of the nasal process, ending above at the ridge for the turbinate bone, part of which ridge it forms." Callender accounts for the absence of all trace of the human intermaxilla on the

* "On the Relations of the Vomer, Ethmoid and Intermaxillary Bones," *Phil. Trans.*, 1861.

† *Proc. Acad. Nat. Sc.*, Philadelphia, 1848—49, p. 145.

‡ "The Formation and Early Growth of the Bones of the Human Face," *Phil. Trans.*, 1868.

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spect of the upper jaw by the bone being shut off from the the nasal and incisor processes of the superior maxilla. joined to the superior maxilla during the latter part of the beginning of the sixth month." But the independence of maxilla in its earliest stage has also been demonstrated by

Kölliker in his essay already so frequently referred to. imitating a process very similar to that recommended a number of years ago by Dr. Lionel Beale,* for the purpose of studying the stages of ossification in the early embryo, of rendering the bones transparent by digesting the foetus in a solution of alkali, Kölliker has seen the centres of ossification in the upper jaw without any disturbance of their natural relations. He has sketched and figured the head of an embryo at about the fourth week, in which the centre for the intermaxilla was quite distinct from that which gave origin to the superior maxilla.

The Hard Palate where there was no Cleft.—The object of this investigation of the hard palate where there was no cleft was to ascertain if any suture, or the remains of a suture, could be seen in its anterior part, immediately behind the incisor teeth, to indicate

Dr. Albrecht contends, the incisive or intermaxillary part of the human upper jaw had originally consisted of two bones on each side, a mesial or internal, and a lateral or external.

As is well known, it is not uncommon to find in young human skulls, and less frequently in adult palates, the remains of the incisive suture which Goethe recognised as connecting the intermaxillary element of the upper jaw to the superior maxillary element.

Th. Kölliker, who has especially looked into this matter anatomically, states that he has seen the maxillo-intermaxillary suture or the remains of it, ninety-six times in 325 adult crania which he has examined.

Other authors cited by Albrecht in his first communication on this subject, Albrecht himself, and subsequently Professor Herrmann and Meyer, have referred to crania in which the remains of the incisive (endo-mesognathic) suture were also seen; and Albrecht has figured† the hard palate of a child about five years of age in which the mesial palatal suture, a pair of lateral maxillo-

**Lancet's Archives of Medicine*, vol. i. p. 150, 1859. Dr. Beale's formula is to add ten drops of solution of caustic soda in each ounce of alcohol. Allowed to stand for a few days in this fluid, and then preserved in spirit, forms, a very beautiful preparation.

†*Deutsche Zeitsch. für Chirurgie*, 1844.

intermaxillary sutures, and a pair of intra-incisive sutures were visible. The observations which I shall now refer to enable me also to state that a narrow fissure in each intermaxilla, which together apparently represent the remains of a pair of intra-incisive sutures, may occasionally be seen in the hard palates of both young and adult human crania, in conjunction with a pair of maxillo-intermaxillary sutures.

a. Superior maxillæ ; milk dentition. A maxillo-intermaxillary suture visible on palate, floor of nose, and nasal aspect of ascending process of superior maxilla. A short intra-incisive fissure, on the palatal aspect, branched off from the maxillo-intermaxillary suture 2 mm. from the mesial palatal suture, and external to the naso-palatine (incisive) canal ; it extended for 2 mm. in the direction of the interval between the central and lateral incisor, but did not reach the alveolar border. It did not extend through to the nasal surface of the bone.

b. Superior maxillæ ; milk dentition. Arrangement similar to that described in *a.*

c. A similar preparation, but the fissure in the right bone extended for between 4 and 5 mm. on the palatal aspect, and reached the interval between the orifices for the gubernacula of the permanent central and lateral incisor teeth.

d. A similar preparation, where there was only an indication of an intra-incisive fissure scarcely 1 mm. long on the palatal aspect of the upper jaw.

e. Superior maxillæ, in which all the permanent teeth were erupted except the wisdoms. Maxillo-premaxillary suture visible both on the hard palate and on the nasal surface of the bone. An intra-incisive fissure branched off from it, and extended for 2 mm. in the direction of the interval between the central and lateral incisor.

f. Right superior maxilla. All the permanent teeth erupted. The maxillo-premaxillary suture was visible on both the palatal and nasal surfaces, and on the former reached the alveolar border. An intra-incisive fissure arose from it 4 mm. from the mesial palatal suture, and extended for 6 mm., so as to reach the alveolar border a little to the inner side of the septum between the central and lateral incisor. This fissure, as in the other specimens, was not visible on the nasal surface.

The place of origin of the intra-incisive fissure in the majority of the specimens was from the maxillo-premaxillary suture ex-

ternal to the incisive canal, which canal, therefore, on the theory that the intermaxilla consists of an inner and an outer division, would lie in relation to the inner division close to the articulation between it and the superior maxilla. In one instance the intra-incisive fissure penetrated into the naso-palatine canal. Obviously, therefore, some condition arising during the development of the bone determined the origin and direction of the fissure in question.*

Th. Kölliker, who, as already stated, is opposed to Albrecht's theory of the double constitution of the intermaxilla, has recognised similar fissures on the hard palate as many as five times, he says, in the skulls of thirty children. But he regards these fissures not as sutures, but as vascular furrows connected with the distribution of the anterior palatine vessels. As a rule, however, the intra-incisive fissure in my specimens did not arise from the anterior palatine fossa,† but from a definite point in the maxillo-intermaxillary suture on the surface of the hard palate. The intra-incisive fissure corresponded closely in its character with the maxillo-intermaxillary suture, with which it was continuous; so that, as far as one can judge from similarity in appearance, if the latter is a suture, which everyone admits, then the former may be fairly regarded as one also.

What is yet wanted, however, in order to give completeness to the evidence of the division of the intermaxillary bone into an inner and an outer part, is the discovery that the intermaxillary bone normally rises from two distinct centres of ossification, one for the inner, the other for the outer part. Of this we have at present no evidence. But, in connection with this matter, we ought not to forget that it is quite recently that the embryological evidence of the origin of the intermaxillary part of the human upper jaw from a centre distinct from that of the superior maxilla has been completed. And yet for nearly a century, on such minor evidence as was advanced by Goethe, viz., the suture on the hard palate extending through to the nasal surface, anatomists have

* A detailed description of the naso-palatine canal in man is given by Prof. H. Leboucq in *Archives de Biologie*, vol. ii., 1881.

† I prefer to call the large foramen in the hard palate behind the incisor teeth the anterior palatine fossa, whilst the lateral foramen opening into it on each side is the incisive or naso-palatine canal, or canal of Stenson, and the two foramina in the mesial suture are the foramina of Scarpa.

believed and taught that the human upper jaw represented both the superior and intermaxillary bones in any other mammal. Where a question in human embryology hinges upon an examination of parts in a very early stage of development, we often have to wait for many years before an appropriate specimen falls into the hands of a competent observer.—*Quarterly Journal of Anatomy and Physiology*.

The Missing Incisors in Man—Which are They?*

By ANDREW WILSON, L.D.S.ED.

THE number of incisor teeth in what is called the typical dentition in placental mammalia being six in each jaw, or three pair (one central and two lateral), while that in man is normally two pair (one central and one lateral), the question I propose raising is, which of the lateral pairs has been suppressed? The answer given by the authorities on Dental Anatomy is, the outermost, *i.e.*, the third on each side. Mr. C. S. Tomes, in his manual, second edition, page 9, says :—"The human subject does not possess the third incisor. . . . so that a somewhat abrupt change of form in passing from the incisors to the canines. . . . is no more than might be anticipated." And at page 286, he gives as a general rule "It is usually said that when incisors are missing from the full typical number, they are lost from the outer end of the series, that is to say, if there is but one incisor, it is 1^1 ; if two 1^1 and 1^2 . There are many exceptions to this, *e.g.*, the first incisor is the first to disappear in the otter (?), walrus, and some others."

The first named is evidently a misprint for the Otariæ (eared seals) the number of incisors present being very varied in the different genera among the Phocidæ.

As in the superior maxilla we have the advantage of the incisor teeth being restricted to a well-defined portion, the intermaxillary, originally a distinct bone, I will, in what follows, speak of the upper incisors only.

Cases in which we find the full typical number of incisors present and of normal form in man, are seemingly very rare, but cases in which, while only the normal number was present on one side, there were three on the other, are much more frequent.

* Read at the Annual Meeting of the Odonto-Chirurgical Society of Scotland on the 13th ult., and reprinted from the Transactions of the Society.

These extra teeth usually follow the lateral type, but we have a model in the Museum of our Society of one following the central type.

Of the first class, I have only met with two (exclusive of one* in the temporary dentition), as against seven of the second class, and as in these (with two doubtful exceptions) the lateral second from the canine seemed to me the intercalated one, I have been in the habit of teaching that I considered the suppressed incisor in man to be the second, not the third, the authority of the manual notwithstanding.

This view is very materially strengthened if we include, as incisors, those abnormally formed teeth, which so frequently show themselves in the intermaxillary portion of the maxillary bones.

These almost invariably take up a position either between the normal lateral and the central incisor, or in the mesial line, most frequently within the dental arch.

Looking to the forms of these teeth, we may arrange them in two groups, the first, by far the more common, are pointed conical teeth (the typical supernumerary tooth); the second are usually much larger, with very irregularly formed cutting edges, frequently broad and multituberculated.

The first group I hold to be lateral incisors taking on the rudimentary form, which we find, as a rule, to precede suppression, and which we now find not unfrequently in undoubted lateral incisors.

I may remark in passing that it is from the more frequent appearance of this form in the normal lateral, coupled with the seemingly now more frequent suppression of this tooth, that we conclude that in man there will in course of time be only the central incisors left.

Those of the second group I regard as, when large, malformed

* In this, the teeth formed a perfect arch, and the central and second incisors were geminated, each having its own pulp cavity.

The after history of this case would have been of considerable value, but the accidental death of the boy made it only partial. A second model shows that the second incisor on the right side was succeeded by a permanent one, which erupted *outside* the arch. His father (a medical lecturer) reported that a lateral had appeared on the other side in succession to the *third* temporary incisor, and that there was no appearance of a second. Still, sufficient time had not elapsed to say it might not have come; at the same time, if it had done so, it would have been out of the arch.

incisors of the central type, and when smaller, of the lateral ; and I think a close inspection of these forms will bear me out.

Holding these opinions, I was much pleased to learn, through a paper by Professor Turner on "The relation of the alveolar form of cleft palate to the incisor teeth, and the intermaxillary bones," read before the Royal Society here in December last, that Dr. Paul Albrecht had, while investigating the anatomy of cleft palate, been led to the same decision regarding the suppressed incisors in man.

For the benefit of those members who may not have an opportunity of seeing that paper, which strongly supports Dr. Albrecht's views, I will, in conclusion, very briefly give the chief points which led Dr. Albrecht and Professor Turner to that decision.

In very much the larger number of cleft palate cases examined by them, they found that the alveolar fissure, in place of being in the line of the maxillo-intermaxillary suture, that is, between the outer incisor and the canine, was to the *mesial* side of the outer incisor and so in the body of the intermaxillary bone, the maxillo-intermaxillary suture co-existing with it. Minute examinations of a large series of superior maxillæ led to the detection of traces more or less decided of an "intra-incisive" suture (in the plane of which the cleft usually occurs) and to the conclusion that originally the intermaxillary portion consisted of two bones on each side, the mesial one of which, in man, carried the socket of the central incisor, the other that of the lateral.

In those cases of cleft palate in which an extra incisor was present, its socket was *invariably in the mesial portion* along with that of the central, showing it to be the second incisor of the typical dentition.—*Transactions of the Odonto-Chirurgical Society of Scotland.*

Congenital Alveolar Fissure, with its Accompanying Dental Condition.

By OAKLEY COLES, L.D.S.Eng., London.

It is proposed in the present paper to deal with the consideration of thirty-one cases of congenital fissure of the alveoli and hard palate, occurring in my own practice.

The numbers given will correspond with numbers attached to the models.

Following the example of Dr. Albrecht and Professor Turner, I

shall speak of the tooth placed anteriorly to the true canine on the side where the fissure occurs as the pre-canine tooth, though I do not by this wish to admit the acceptance of the theory that man has ever had, normally, six true incisor teeth. For simplification of comparison, I shall follow the order taken in the valuable paper by Professor Turner, and describe first, left alveolar fissure; secondly, right alveolar fissure; and thirdly, double alveolar fissure. I shall endeavour as far as possible to avoid coming to any definite conclusions. The views put forward are so interesting, and yet so greatly at variance with much that has hitherto been held as a satisfactory explanation of the origin of fissure in the alveolar region, that it seems to me desirable we should for the present content ourselves with the accumulation of facts, rather than attempt to settle the question at issue by any premature generalisation.

In speaking of right and left I shall always refer to that of the patient, and not of the onlooker.

FIRST SERIES.—LEFT-SIDED FISSURED ALVEOLI.

Model 11.—*Case 1.*—Left-sided alveolar fissure; permanent central incisors, and first permanent molars erupted. Four temporary pre-molars and two temporary canines in normal position, no evidence of temporary or permanent lateral on right side, small pre-canine in process of eruption in the left maxillary bone.

Model 22.—*Case 2.*—First permanent molars, right permanent central and lateral incisors erupted; four temporary molars and two canines persistent; pre-canine partially erupted on left side.

Model 16.—*Case 3.*—Dentition transitional; well erupted pre-canine on left side.

Model 21.—*Case 4.*—Permanent molars and bicuspid erupted, right central and lateral incisor and canine in position; left, apparently temporary, canine persistent; well-developed pre-canine; no evidence of left central incisor.

Model 27.—*Case 5.*—Dentition transitional; first right and left bicuspid in process of eruption, right and left canine in process of eruption, right and left central well developed, right lateral rudimentary in form, no evidence of pre-canine on left side.

Model 18.—*Case 6.*—Adult dentition; two bicuspid and canine on left side normal in form and position, well marked pre-canine on left side. The dentition on the right side apparently irregular in character.

Model 26.—*Case 7.*—Adult normal dentition; well marked pre-canine on left side.

Model 19.—*Case 8*.—Adult normal dentition ; crown of pre-canine on left side apparently excised.

Model 13.—*Case 9*.—Adult dentition ; no pre-canine on left side and no left central incisor.

Model 23.—*Case 10*.—Adult dentition ; no pre-canine on left side and no left central incisor.

Model 17.—*Case 11*.—Adult dentition ; no canine or pre-canine on left side, and no left central incisor.

Model 14.—*Case 12*.—Immature dentition ; no right canine ; indications of left canine and pre-canine in process of eruption.

Model 28.—*Case 13*.—Adult dentition ; no pre-canine on left side, and no left central incisor.

Model 29.—*Case 14*.—Adult dentition ; imperfectly formed teeth ; no pre-canine on left side, and no left central incisor.

Model 15.—*Case 15*.—Immature dentition ; no pre-canine ; permanent canine apparently in process of eruption.

Model 24.—*Case 16*.—Adult dentition ; indications of two teeth on the left side in the canine region.

Model 20.—*Case 17*.—Adult dentition ; canine on left side ; no indication of pre-canine.

SECOND SERIES.—RIGHT-SIDED FISSURED ALVEOLI.

Model 1.—*Case 18*.—Adult dentition ; canine on right side ; pre-canine erupted in the palate, but at the margin of the cleft ; no right central incisor, and one bicuspid missing on each side.

Model 8.—*Case 19*.—Adult dentition ; canine on right side ; pre-canine erupted in the palate, but at the margin of the cleft ; right central incisor in normal position.

Model 9.—*Case 20*.—Adult dentition ; canine on right side ; pre-canine erupted in the palate at the margin of the cleft ; right central present, but semi-rotated.

Model 6.—*Case 21*.—Adult dentition ; canine on right side ; no pre-canine, no right central incisor, left lateral incisor rudimentary in character.

Model 10.—*Case 22*.—Adult dentition ; canine on right side, pre-canine uncertain, right central present.

Model 2.—*Case 23*.—Adult dentition ; canine on right side, no pre-canine, no right central.

Model 3.—*Case 24*.—Adult dentition ; canine on right side, pre-canine excised, erupted in the palate at the margin of the cleft, no right central incisor, two bicuspid missing.

Model 7.—*Case 25*.—Adult dentition ; canine on right side, pre-canine possibly in the gum, right central incisor present.

Model 4.—*Case 26*.—Adult dentition ; neither canine nor pre-canine erupted, no right central, left central excised.

Model 5.—*Case 27*.—Adult dentition ; canine on right side, no pre-

canine, no right central, left lateral apparently extracted from outside of dental arch.

THIRD SERIES.—DOUBLE ALVEOLAR FISSURE.

Model 30.—*Case 28.*—Adult dentition ; canine on each side in normal position, pre-canine on right side normally placed in dental arch, pre-canine on left side erupting outside of dental arch.

Model 23.—*Case 29.*—Adult dentition ; canine on each side ; pre-canine on left side in dental arch, but not fully erupted ; pre-canine on right side imperfectly erupted outside dental arch.

Model 32.—*Case 30.*—Adult dentition ; canine on each side, pre-canine on left side fully erupted in dental arch, condition of right side uncertain.

Model 31.—*Case 31.*—Adult dentition ; canine on each side, no pre-canine.

OBSERVATIONS.

1. It will be observed that there is not a single instance of fissure of the alveoli occurring between a true lateral incisor and canine on either side of the mouth.

2. That in five out of ten cases of right-sided fissure the right central incisor is missing.

3. That in eight out of seventeen cases of left-sided fissure the left central incisor is missing.

4. That in five out of seventeen cases of left-sided fissure a pre-canine tooth is clearly present.

5. That in four out of ten cases of right-sided fissure the pre-canine is clearly present.

6. That in two out of four cases of double alveolar fissure a pre-canine is present on each side, and in a third case, on the left side.

7. That there is not any sufficient evidence in any case of increase in the number of teeth in the pre-canine region, whilst there is distinct evidence in some cases of the reverse condition, and also of imperfect development.

8. The evidence at present before us is quite insufficient for the purpose of arriving at any conclusion, whilst the seven models without any numbers attached will indicate the singular liability of the pre-canine region of the upper jaw to irregularity of a purely dental origin.

9. The chief aims of observers for some time to come must be the examination of fissured alveoli very early in life, the careful

dissection of the premaxillary bone in cases where it has been excised for the better treatment of hare-lip during infancy, and the collection of very accurate and carefully preserved models for the purpose of recording the exact condition of the teeth at various ages.

The author of the paper apologises for the rough condition of the models submitted, but as in the original they have all been in use for the fitting of some form of artificial palate, their state will not be a great matter of surprise to those who examine the casts. They may at least be recognised as possessing the merit of being untouched so far as restoration is concerned.—*Transactions of the Odonto-Chirurgical Society of Scotland.*

Bacteria Two Hundred Years Ago.

THE Amsterdam *Allgemeen Handelsblad* publishes a communication from Professor E. Cohn, of the University of Breslau, who recapitulates the substance of a correspondence of the celebrated naturalist Leeuwenhoek with Francis Aston, of London, a member of the Royal Society. Leeuwenhoek, writing from Delft, in 1683, reports that among the *debris* of food remaining between his teeth he had discovered, with the aid of the microscope, living organisms moving with great activity. He distinguishes various kinds among them, which he describes so precisely that they would be easily recognisable. One, which occurs less frequently, resembles a rod, the bacillus; others, twisting in curves, are bacteria; a third kind, creeping in snake fashion, is the *virbrio ugula*; another kind, of extreme minuteness, resembles a swarm of flies rolled up in a ball, and is evidently the micrococcus. Its movements cannot be traced with certainty. He says that these species seems to be made up of parallel threads, varying in length, and remaining immovable, while other specks move in and out through the web. Leeuwenhoek marvels that these things could live in his mouth, notwithstanding his systematic habit of cleansing it. He instituted observations which showed that they were also to be found in the mouths of other persons. Some years later he could not discover any traces of those minute organisms, and he was led to attribute their disappearance to the use of hot coffee. But shortly afterwards he rediscovered them as lively as ever. In September 1692 he sent some sketches of them to the Royal Society. Professor Cohn observes that it would seem from this correspondence that

the knowledge concerning those minute entities made no advance for nearly two centuries, and he remarks on the wonderful skill with which Leeuwenhoek used the imperfect instruments of his time.—*London Medical Record*.

ANNOTATIONS.

At the next meeting of the Odontological Society, a paper on "Bridge-work," will be read by Dr. St. George Elliott. Casual communications have been promised by Messrs. W. A. Hunt, of Yeovil, C. W. Dunn, of Florence, A. S. Underwood, Henri Weiss, and others. The meeting this month taking place on the 13th, after this journal had gone to press, we are compelled to hold over our report until next month.

WE have received from Mr. Spence Bate, of Plymouth, notes of ten cases in which he has used the citrate of cocaine paste, introduced to the profession by Mr. George Brunton, for the relief of sensitive dentine. Nearly all the patients were young, six out of the ten being under twenty and only two over thirty; seven out of the ten were females. As to the results; in only one case, a girl aged eleven, was the result doubtful. In four cases the application was markedly successful, and in five the sensitiveness was decidedly reduced, but not entirely removed. The paste was applied on amadou; in two of the cases very decided relief was obtained after an interval of two or three minutes, in the others it was applied for seven or eight minutes. Mr. Bate has also used the hydrochlorate of cocaine dissolved in oil of cloves, but found the results much less satisfactory than with the citrate.

MR. J. MCKNO ACLAND, of Exeter, sends the following report of his experience to the *British Medical Journal*:—

Having read with interest the reports which have appeared week after week of the various uses to which cocaine has been put, I thought a few particulars of my experiments with it in dental surgery might be interesting.

For extraction, I have tried both the solution and the hydrochlorate of cocaine itself, and, with the latter, have obtained very satisfactory results. It seems to answer best for front teeth and bicuspid, also

for stumps when separate. The following case will show the method adopted, &c.

R. W., a porter, aged twenty, came to the Dental Hospital to be relieved of a lower right second bicuspid, which was above the average size and quite firm. I first surrounded the tooth, and about half an inch of the gum around it, with the corner of a napkin, to keep the parts dry, and prevent the cocaine from being carried off in the saliva. I then freely applied the crystals to the gum close around the tooth, three times, at intervals of two minutes each. After the second application, the gum was entirely anæsthetised, the patient not feeling the pricks of a sharp probe. A few seconds after the third application, with a pair of warm forceps, which I carefully hid from view, I extracted the tooth, and said nothing for some time. At last I desired the patient to wash out his mouth, but he began to smile, saying the tooth was not out ; nor would he believe that it was until he had felt the empty socket with his finger.

With large teeth I have found it a good plan to treat as above, and then, just before extracting, to introduce the nozzle of a fine hypodermic syringe between the gum and neck of the tooth, and inject three or four minims of the 4 per cent. solution. This may not, however, be possible in all cases.

With molar teeth, more especially upper, although the pain is greatly diminished, there is always the twinge of the actual separation of the tooth from its socket, and the rupture of the nerves, &c., at the apices of its roots.

In all the cases I have seen, the gum has returned to its normal state in a short time, and there has been no unfavourable symptom of any kind, although I have carefully watched for them both locally and otherwise. As an obtundent for sensitive dentine, the 20 per cent. solution has proved, so far very effectual. By applying it on a pellet of cotton-wool for a short time, I have been enabled to proceed with the preparation of a cavity for filling, which before has caused the patient the most acute pain ; and a solution of this strength will, I think, be found of great advantage in cavities in close proximity to the nerve, or even in operations on the nerve itself.

WE commend the following extract from the *Times*, of March 21st, to the notice of the numerous correspondents who are constantly bringing similar cases under the notice of our Executive and suggesting legal proceedings. We are in the habit of referring such correspondents to clause 3 of section 12, and clause 1b of section 4 of the Act. It would appear from section 29 also that the production of a certificate of registration, as was done in this case, may be a sufficient defence. The fact that the plaintiff in this case not only gained nothing by his action, but had to pay

part of his opponent's cost as well as his own, may perhaps help to convince some of the individuals above referred to, who were not always satisfied with our reply, that the advice we gave them was at least prudent :—

“At Wandsworth, Mr. Andrew George Yates, of Wandsworth Road, appeared to answer a summons at the instance of Mr. Robert Hugh Hodson, charging him with using the title of a ‘surgeon-dentist,’ contrary to the provisions of the 41st and 42nd Vict., cap. 33, not being registered. Mr. Morton Smith appeared to support the summons, and said he believed the defendant had never been registered. His card bore the letters ‘R.D.S.,’ meaning ‘registered dental surgeon.’ Counsel produced a copy of the Register for the present year, in which the defendant's name did not appear. Mr. H. R. Jones, who defended, said his client was registered, and produced a certificate to that effect, dated 1879. Mr. Smith said the certificate had taken him by surprise. The defendant represented on his card that he was a registered dental surgeon, which clearly he was not. Mr. W. J. Miller, Registrar of the General Medical Council, was called, and said the defendant's name appeared in the register of 1880, but not since that time. The name was erased through a change of residence. Mr. Paget said the question was whether the defendant had been guilty of an offence under the Act. He inquired whether the defendant was entitled to be registered. Mr. Miller replied that he would not register the defendant's name without the order of the Council. Mr. Paget dismissed the summons, and on the application of Mr. Jones, who said the parties were rival practitioners, ordered the complainant to pay two guineas costs. Mr. Smith asked the magistrate to grant a case on the question of registration, but he refused.”

WE announced last month that it had been decided to have a Section of Dental and Oral Surgery at the next meeting of the International Medical Congress at Washington. The section has now been fully constituted with the following list of officers :—

President—J. Taft, M.D., D.D.S., Cincinnati, Ohio.

Vice-Presidents—W. W. Allport, M.D., D.D.S., Chicago ; W. H. Dwinelle, M.D., D.D.S., New York City ; J. L. Williams, M.D., D.D.S., Boston, Mass.

Secretaries—E. A. Bogue, M.D., D.D.S., New York City ; G. H. Cushing, D.D.S., Chicago.

Members of Council—W. C. Barrett, M.D., D.D.S., Buffalo, N.Y. ; Thos. Fillebrown, M.D., D.M.D., Portland, Maine ; F. J. S. Gorgas, M.D., D.D.S., Baltimore ; Ed. Maynard, M.D., Washington ; J. H. McKellops, D.D.S., St. Louis, W. H. Morgan, M.D., D.D.S., Nashville, Tenn. ; C. N. Pierce, D.D.S., Phila-

delphia; L. D. Shepard, D.M.D., Boston, Mass.; James Truman, D.D.S., Philadelphia; J. W. White, M.D., D.D.S., Philadelphia.

Two cases of swallowing artificial teeth, lately treated in the wards of Prof. Bilioth, are reported from Vienna by the correspondent of the *Lancet* (March 28th.) In the first case, a set of teeth which had been impacted in the œsophagus for some days, resisting all attempts at extraction, were removed by œsophagotomy. There were signs of commencing gangrene of the œsophagus, but the patient made a good recovery. The second case is more remarkable, and the treatment adopted appears to our ideas somewhat severe, seeing that no mention is made of any urgent symptoms. The particulars given are as follows :—

“The second case was that of a girl aged nineteen, who swallowed a set of teeth during the night of February 14th. All endeavours to extract the plate were vain. On admission to hospital the foreign body could be distinctly felt in the œsophagus. On the following morning the largest sound could easily be introduced, and Professor Bilioth decided to perform gastrotomy about three centimetres below the edge of the ribs on the left side. Through an incision in the stomach he tried ineffectually to reach the foreign body with the finger; he then drew out almost the whole of the stomach, but without discovering the object of his search. Although it was improbable that the plate had passed the pylorus, he enlarged the wound in the abdomen and explored the abdomen with his hand, but again without success. Only that part of the stomach remained to be searched which is fixed to the spleen. Here Professor Bilioth, introducing his other hand, found the body lying flat against the wall. The stomach was sewn up, put back, and the wound in the abdomen was likewise closed. The patient is already able to take liquid nourishment.”

Some New Zealand papers received last month from Mr. George Robinson of Oamaru, contain a very curious account of the proceedings of a Mr. Louis Sinclair, who had obtained registration in the colony on production of a diploma of the Irish College of Surgeons. His practice, according to the evidence produced in the actions brought against him, seems to have been to extract as many teeth as he could, the result being, as the judge remarked in the course of one of the trials, “that the patient found herself compelled to comply with the suggestions the defendant made as to the supply of artificial teeth.” How-

ever, Mr. Sinclair's New Zealand tour can scarcely have proved as profitable as he expected, for we find him ordered to pay costs and damages in two actions, and others are mentioned as being entered for trial. The latest reference in point of date is a notice in the *New Zealand Gazette*, to the effect that the name of Louis Sinclair had been erased from the Colonial Dentists' Register in consequence of representations made by the Council of the Royal College of Surgeons, Ireland. Evidently Mr. Sinclair made a mistake in going to New Zealand; had he remained in this country he might, judging from what we know of the success of certain individuals who carry on a similar style of practice, have made a very respectable fortune. People in England are not in the habit of making such a fuss over the loss of seven or eight teeth.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Re Amalgams.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Your correspondent "Common Sense" has hardly grasped the difficulties and peculiarities of this subject. It would appear that he, like almost every other dentist, does not take the trouble to test thoroughly any amalgam he intends to use, before using it in the mouth. The pretty names given to amalgams by some makers serve the purpose of a decoy, not to mislead the patient, but to persuade the dentist who does not test his amalgams, to buy them, and occasionally to write wonderful testimonials, which, to one fully experienced in the matter, are simply confessions of ignorance. The properties of an amalgam depend only to a limited extent on its general composition, and a trace, for instance, of palladium in an ordinary amalgam will spoil it completely, even if the quantity is so small as to be unnoticed in any ordinary assay.

It is a curious and still unexplained fact that palladium, which, when used alone, makes one of our most perfect amalgams, is, when alloyed with other metals in any and every proportion, destructive to all good properties which may be possessed by the same metal or alloy before the palladium has been added. The exhaustive series of experiments I made to decide this point, the results of which were published in the *British Journal of Dental Science* some years ago, are, I think, conclusive against the admission of the slightest trace of palladium in any amalgam alloy.

As palladium is present in a large proportion of the samples of silver and gold in commerce, and as its presence is not objectionable for any other purpose, we have here a weak point in all amalgams, and it becomes a question of testing every melting and every ingot by careful

packing and discolouration tests. In case of a failure, partial or entire, there is no help but to throw the whole into the scrap for refining, with a loss of about 50 per cent. on its intrinsic value, and to obtain a supply of the necessary metals from some other source and try again. Few makers will face the trouble and expense of this, and the consequence is that few samples of amalgams are either uniform or reliable. If a dentist learns the component parts of an amalgam he thinks he can make it, and rarely takes the trouble to find out that he cannot until his fillings begin to fail, when, as a rule, he blames the recipe and flies to another unknown alloy which he has not learnt how to use, and so the trouble goes on, the amalgam, as usual, getting all the blame which rightly should be given to the operator. Many of the modern alloys contain more or less zinc, the fashion in this metal having apparently been re-imported from America, with the difference that many alloys with fine names are the same as older and discarded ones, the only difference being that they are sold at a very fancy price. As things are tending, it would appear that if an enterprising man were to sell crystals of tin or zinc as "cohesive diamond chips" at £4 per oz., he might perhaps attain both fame and fortune.

If "Common Sense" will have the common sense to expend some little time and care in learning the peculiarities of, and best system of working any one amalgam, he will do more service to his reputation and patients than if he tries all the most expensive and wonderfully advertised amalgams, without learning how to best use any one of them.

If an operator can obtain experience enough with any alloy to make, with certainty, permanently water-tight fillings in cavities which are shallow, awkwardly shaped, and at least three-eighths of an inch in diameter, he will be able to make amalgam fillings which will show a record of good service which the best operator in gold now living will not be able to match. If an operator cannot make colour-tight fillings in difficult cavities with any material he uses, the sooner he discontinues its use the better for himself and his patients. If he fails, it is always well worth while for him to know whether the failure is due to himself or to the amalgam.

THOMAS FLETCHER.

Dr. Bonwill's Method of Amalgam Filling.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—I wish to communicate to the profession a rapid, easy, and effective method of plugging teeth with amalgam, kindly shown to me by its originator, Dr. Bonwill, of Philadelphia; and as this way is particularly suitable for contour work, I will describe the filling of two interstitial cavities, taking for example the proximal surfaces of a first and second molar. The teeth having been previously separated, the cavities are excavated, the cervical margins, when practicable, being cut down to the level of the gum, and the lingual and labial walls

largely removed, so that the edges of the fillings may be well exposed. Small grooves are then cut on either side, and, as a rule, retaining cavities made on the masticating surfaces. The amalgam (Dr. Bonwill's amalgam for fixing his crowns) is now mixed with sufficient mercury to make a firm though plastic mass, and the cavities having been dried, a small portion of the mix is placed in and between the cavities, and worked in first with a burnisher, and then pressed home by placing on it a pellet of bibulous paper, and applying to the pellet very considerable pressure with a blunt-pointed steel instrument. More amalgam is inserted and condensed in the same way, and the process repeated until the cavities are completely filled, when finally, great pressure is applied through a pellet of paper, by means of an instrument devised by Dr. Bonwill for fixing his artificial crowns (bicuspid and molars), which consists of an india-rubber buffer about half an inch in diameter, slightly projecting from a ferrule fixed to a wooden handle, the surface of the rubber and ferrule being at an angle of about forty-five degrees to the axis of the handle, to allow of its being applied to the back teeth. The fillings, or rather the filling—for at this stage there is only one—is now cut away until the bite is free (this being done first to prevent any chance of the amalgam being dislodged), and then roughly shaped at the cervical margin with thin steel instruments, but not divided at the surface, and the operation is completed for that sitting. On a subsequent day, when the amalgam has completely set, a division is made with a very thin band-saw, and the fillings shaped with hard rubber and corundum discs at the sides, and with conical fissure burrs at the cervical margins, and finally finished by polishing with pumice powder, &c.

The principal peculiarities of this method are, filling proximal cavities together, by which much time is saved, and using considerable pressure on pellets of bibulous paper, by which process the amalgam is thoroughly adapted to the walls of the cavities, while all excess of mercury is squeezed out at the sides, and the crumbling—so common a source of trouble when using very dry amalgam—avoided.

Dr. Bonwill frequently separates teeth by means of a temporary filling of red base plate, placed in and between the cavities, which, being bitten on, spreads laterally, and in the course of a month or so makes the requisite space.

Believe me, dear Sir, faithfully yours,

24, *Queen Anne Street.*

F. EWBANK.

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

ANSWERS TO CORRESPONDENTS:—

EXEMPT : Having allowed your name to be placed on the list of those eligible to serve, you were liable to be summoned, and could be compelled to serve. Be careful to examine the lists at the next annual revision, and if your name again appears, send in a claim of exemption at once, or you may have the same trouble over again.

J. H. J. : We do not know of any complete account of actinomycosis in English, though numerous references to it have appeared in the *London Medical Record*, *British Medical Journal*, &c., within the last two or three years ; see, for instance, *London Medical Record*, May, 1884, or *Medical Times*, March 14th, 1885. The best and most recent work on the subject is Dr. Jas. Israel's Clinical Treatise on "Actinomykose des Menschen," in German, recently published by Hirschwald, of Berlin.

CORRIGENDUM : On p. 183 of the last number of this Journal, 15th line from top, for "eminent dentist" put "eminent oculist." The passage as printed in almost nonsense, but the error is tolerably obvious.

COMMUNICATIONS HAVE BEEN RECEIVED FROM :

Dr. Arkovy, Budapest ; C. S. Tomes, London ; H. Blandy, Nottingham ; W. B. Macelod, Edinburgh ; Exempt ; F. E. Huxley, Birmingham ; J. S. Amoores, Edinburgh ; J. J. Andrew, Belfast ; H. Sewill, London ; A. W. Baker, Dublin ; J. H. J. ; J. S. Bate, Plymouth ; R. F. H. King, Newark ; R. H. Woodhouse, London ; H. B. Mason, Exeter ; &c.

BOOKS AND PAPERS RECEIVED : Principles and Practice of Dentistry, by Chapin A. Harris, 11th Ed., 1885 ; Transactions of the American Dental Association, 1884 ; Revista Argentina de Ciencias Medicas ; Subovrachebny Vestnick ; Skandinavisk Tidsskrift for Tandlæger ; Oesterrischisch-Ungarische Vierteljahrsschrift für Zahnheilkunde ; Deutsche Monatsschrift für Zahnheilkunde ; Centralblatt für Zahnheilkunde ; Monatsschrift des Vereins Deutscher Zahnkünstler ; Progrès Dentaire ; L'Odontologie ; Revue Odontologique de France ; Revue Odontologique de Bruxelles ; Independent Practitioner ; Dental Cosmos ; Dental Register ; Southern Dental Journal ; Ohio Journal of Dental Science ; Archives of Dentistry ; British Journal of Dental Science ; Dental Record ; London Medical Record ; Birmingham Medical Review ; British Medical Journal ; Lancet ; Medical Times ; Transactions of the Odontological Society of Great Britain ; Transactions of the Odonto-Chirurgical Society ; Chemist and Druggist ; Northern Whig, March 19th, &c.

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, April 17th, at 5.30 p.m.; Committee of Management, April 20th, at 5.30 p.m.; Medical Committee. April 23rd. 5.30 p.m.

Monday, May 4th, at 7 p.m.; General Meeting, at 8 p.m.
Publishing Committee, April 30th, at 5.30 p.m.

Members are reminded that their Subscriptions for the current year are now due, and should be remitted to the Treasurer, at 40, Leicester Square.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 5.

MAY 15, 1885.

VOL. VI.

An Unfortunate Difficulty.

OUR readers will learn from a letter which we print at another page that an unfortunate state of discord has arisen at the Liverpool Dental Hospital, one of the leading provincial institutions of its kind. Without presuming to judge of the merits of the case, the facts as known to us are these. At a recent election to fill a vacancy upon the staff, the Medical Committee recommended two of the candidates before them; the Managing Committee, however, ignoring this recommendation, elected another gentleman, whose selection appears to have been so distasteful to the existing staff that they resigned in a body.

And their resignation led to another untoward result, for certain of the students of the hospital, unwilling to cast in their lot with an entirely new staff, have demanded that their fees should be returned to them.

The result is one that must be deplored as calculated to do harm both to the hospital and to the school in the eyes of the public, and without offering any opinion upon the course of action taken by either side, it is hard to suppose that the gain to the institution conferred by the addition to its staff of any one individual, no matter how well qualified, can be at all commensurate with the mischief otherwise done; and the course which such an one would, under all ordinary circumstances, be led by his own feelings to take when he finds himself in antagonism with the whole staff is so obvious that it does not need to be pointed out here. But whilst a just judgment must turn upon minute details which can only be fully known to those upon the spot, and which are not all perhaps suitable for discussion in the pages of a public journal, there are some general reflections suggested by the affair which have a more than local application, for the whole question of hospital management is opened up by the issue involved.

Most hospitals have a kind of dual management, in the form of a medical committee, which is subordinated to a general committee, in which latter the lay element is usually pretty largely represented. This arrangement has, after a long and wide experience, been found to work well; it is acknowledged that bodies of men all belonging to the same profession are capable of a narrowness of action of which the individuals would not severally be guilty, and it is therefore very desirable that the supreme governing body should be a mixed one.

But it is also very necessary for the well being of the institution, as well as for ordinary harmony of working, that the supreme authority should be very chary of exercising its supremacy in any matter upon which the medical staff may fairly be presumed to have superior means of information, and it has always been productive of misfortune when

the distinct recommendations of a medical committee have been overruled by the governing body. Without looking nearer home, the case of Guy's Hospital may be cited. There the governing body ignored the recommendations of the medical committee in matters which lay within their legitimate scope, and after the resignation of the senior surgeon and physician, and the infliction of great injury upon the institution in the eyes of the public, it was at last found essential to give to the medical staff their proper influence within their own province.

We would repeat, then, that only under extreme circumstances can it be right for the governing bodies to come into conflict, and the overruling of the one by the other is a thing only defensible in the face of an abuse which cannot otherwise be remedied.

In the present instance each side has exercised its utmost right, the one in ignoring expressed opinions in a matter closely concerning the medical aspects of the case, the other in their practical protest by resigning; and when each side has thus played its last card it is time to see what *modus vivendi* can be arrived at.

Something in the way of compromise is the almost inevitable sequence of a state of war. The modern usage seems to point in the way of submitting irreconcilable differences to arbitration; with the present organisation of the dental profession it would not be hard to find either individuals or some body to whom both parties might fearlessly confide their interests.

It must not be forgotten that the staff have shown the courage of their opinions by resigning positions of trust and of honour, such as are sought after by all the worthiest members of the medical profession, and that, although measures which may be called violent are to be as a rule deprecated, yet even in this age the Englishman is ready to

fight upon occasion, at least we hope so. And if the worst comes to the worst, in Manchester, phoenix-like, a new and flourishing institution has been seen to spring from the ashes of the old.

ASSOCIATION INTELLIGENCE.

Meeting of the Representative Board.

A MEETING of the Representative Board will be held at 40, Leicester Square, on Saturday, the 30th inst., at 3 p.m.

Western Branch.

A MEETING of the Council of this Branch was held at the Royal Hotel, College Green, Bristol, on Saturday, the 11th ult., Mr. W. A. Hunt, President, in the chair.

The following gentlemen were elected Members of the Association and Branch : — Peyton G. Levason, L.D.S.Eng., 12, Bridge Street, Hereford ; Andrew Robertson, 25, Castle Street, Hereford ; and Stephen Mundell, L.D.S.Eng., 19, Bedford Circus, Exeter.

It was decided to hold the Annual Meeting at Hereford on Monday, August 24th, the general arrangements to be left in the hands of the President-Elect, Mr. G. C. McAdam.

A communication was read from the Hon. Sec. of the Benevolent Fund, suggesting the formation of a Local Committee to assist in carrying out its objects. The consideration of the letter was postponed until the Annual Meeting.

HENRY B. MASON, *Hon. Sec.*

The Hon. Secretary will be glad to receive notice from Members of their intention to read papers or give demonstrations at the Annual Meeting at least a fortnight previously, in order that proper arrangements may be made.

Scottish Branch.

THE third Annual Meeting of this Branch will be held at the Queen's Hotel, Dundee, on Friday the 5th prox. at 5 p.m., Dr. John Smith, LL.D., President, in the chair.

After the usual business,—reception of Secretary's and Treasurer's Reports, Election of office-bearers, and selection of place for next Annual Meeting,—a paper will be read by Mr. P. Crombie, L.D.S.Ed., of Aberdeen, on "the Range of Dental Influence"; a communication will be made by the Secretary regarding "the Recent Prosecutions for the Infringement of the Dentists Act"; and the President will deliver his Valedictory Address.

The members will dine together at the Queen's Hotel at 7.30. Mr. Walter Campbell, President-elect, in the chair. Tickets 10s. 6d. each.

The Local Committee will arrange a short excursion for Saturday, possibly to the Tay Bridge. Members from a distance will be able to return home by the afternoon trains.

Eastern Counties Branch.

THE fourth Annual Meeting of this Branch will be held at the Swan Hotel, Bedford, on Wednesday July 1st, Alfred Jones, Esq., senr., President, in the chair. Business to commence at one o'clock. Casual Communications are invited, but the Council has decided not to ask for papers, believing that members will prefer to reserve these for the Cambridge meeting in August. Dinner will be provided at the Swan Hotel after the meeting.

Messrs. W. A. Rhodes and Geo. Cunningham have been appointed Local Hon. Secs. for the purpose of carrying out the plans for the reception of the Parent Association at Cambridge. As the final arrangements for the Annual General Meeting will be an important subject for discussion at Bedford, it is hoped that members will do their utmost to be present.

W. A. RHODES, *Hon. Sec.*

53, *Trumpington Street, Cambridge.*

Midland Branch.

THE Annual Meeting of this Branch was held in the University Buildings, Nottingham, on Friday, the 17th ult., Mr. J. Harrison, of Sheffield, President, in the chair.

Amongst those present were Dr. John Smith, of Edinburgh (President of the Association); Messrs. J. S. Turner (Vice-President), F. Canton (Hon. Sec.), C. S. Tomes, F.R.S., Oakley Coles,

and Dr. Walker, of London ; Dr. Waite (Hon. Sec. of the Branch), and Messrs. Stewart, T. Dilcock, W. Ladyman, and W. H. Jewitt, of Liverpool ; W. B. Macleod, Edinburgh ; H. Campion, L. Matheson, E. H. Williams, E. Houghton, W. Headridge, W. Dykes, and W. O. Mackie, of Manchester ; W. E. Harding and Roff King, of Shrewsbury ; R. Rogers, Cheltenham ; T. Mahonie, F. Harrison, J. Spotswood, F. Dale, and J. L. Pike, of Sheffield ; R. F. H. King, Newark ; T. E. King, York ; D. A. Wormald, Bury ; S. Wormald and T. Gibbons, of Stockport ; G. E. Brunton, Leeds ; W. Helyar, Bristol ; C. Sims and F. E. Huxley, of Birmingham ; J. C. Storey, Hull ; J. S. Crapper, Hanley ; T. Murphy, Bolton ; A. M. Matthews, Bradford ; J. H. Jones, Ashton ; T. Wormald, Oldham ; E. Renshaw, Mansfield ; F. D. Walker, Doncaster ; and H. Blandy (President-Elect), Stewart Hepburn, Chalcrafft, D. A. Dennis and Dr. Marshall, of Nottingham.

The PRESIDENT read a letter from Sir Edwin Saunders, written from Monte Carlo, expressing his disappointment at being unable to attend the meeting. He then called upon the Hon. Secretary, Dr. Waite, to read the report of the Council, which was as follows :—

Since we last met at Sheffield, several events have occurred, affecting in some degree the interest of our Branch, but requiring only a passing notice in this Report.

The Sheffield meeting was a most successful one; the attendance was good, the arrangements were admirable, owing to the enthusiasm and energy of our Sheffield brethren; and the social recognition accorded to the members will live long in their remembrance.

Following next, was the Annual Meeting of the British Dental Association, at Edinburgh, an occasion of great interest and privilege to all who were able to be present.

In October we had one of our smaller meetings in Manchester, at which the attendance, and interest taken in the proceedings, were decidedly encouraging.

In December, the Central Counties Branch was inaugurated in Birmingham, and the Council can only rejoice in this multiplication of centres, from which the influence of the British Dental Association must radiate, although for a time it may appear to threaten some loss of territory to our own Branch.

In February again we had a meeting in Manchester, when we were very much pleased to find a larger attendance, and a good

supply of edifying subjects of discussion, proving beyond doubt the wisdom of extending local facilities for professional intercourse.

Next winter the Council hope to do something further in this direction, and are quite prepared to increase the area and number of such occasions as rapidly as they may be justified therein by the support of the members.

In regard to the arrangements for the present anniversary, the Council feel deeply indebted to Messrs. Blandy and Hepburn, who have borne the burden and heat of the day.

During the past twelve months we have lost two members by death, Mr. J. R. Goepel, Liverpool, and Mr. Margetson, Dewsbury—both worthy and respected men.

We are sorry also to record the lapse of seven members through non-payment of their subscriptions to the British Dental Association, and in this connection the Council desire to call particular attention to that feature of our Branch which was specially designed to meet the case of those who might possibly hesitate to incur the double subscription to the parent and the branch, viz., the provision for *Associates*, who by payment of 10s. 6d. yearly may have all the social and professional privileges of connection with the general body, through this relation to the Branch. Perhaps our members will bear this point in mind. At the present time the number of associates is far below what the Council would desire to see. The actual membership, after deductions, is 88.

In accordance with a suggestion from the Benevolent Fund Committee, the Executive of the Branch have formed themselves into a Sub-Committee for the Midland District.

The Council review with pleasure the events of the past year, embodying as they do all the main purposes for which the Association has been founded. Extension of means of intercourse and education—vindication of the provisions of the Dentists' Act—thanks to the vigilance and tact of our good friend Bowman Macleod—further support and demand in connection with the Benevolent Fund, and general advance in the elevation of the dental profession.

The Council beg to nominate Mr. Henry Blandy, of Nottingham, as President for this year, and Mr. A. M. Matthews, of Bradford, as President-Elect, and they recommend that the next Annual Meeting be held at Bradford, where we have already the assurance of a hearty reception.

The Treasurer, Mr. SIDNEY WORMALD, next presented his report, which stated that the subscriptions and donations amounted to £22 19s. 8d., the expenses to £8 1s. 4d., leaving a balance of £14 18s. 4d.

The CHAIRMAN moved, and Mr. J. S. CRAPPER (Hanley) seconded, the adoption of these reports, which was agreed to.

The CHAIRMAN then said :—

Gentlemen,—The time has arrived when, in the ordinary course, I must give place to my successor and retire from the office you did me the high honour of conferring upon me a year ago. I may have fallen short of your expectations in the discharge of the duties incident to the office ; but I am conscious of having done my best to maintain the dignity and prestige of the Association. The year's record of business, I believe, will bear favourable comparison with what has been done in previous years. I must thank the officers and council for their uniform kindness and courtesy, which have made my duties both a pleasure and a profit. The question of a representative on the Medical Council will be raised, and will probably have the attention of my successor, as I perceive it is on his syllabus ; his programme is a long and exhaustive one, and reminds me that I must not take up much of your time, nor do I wish to forestall him in what he may have to say on the subject ; however, permit me to say some restraint is necessary to prevent hasty and immature action for breach of the Dentists' Act. It must always be admitted that a failure in a conviction of an offender would lead to a public disparagement of us as a profession. Malice, vindictiveness, and jealousy are motives that should not be allowed to move the Central Board to initiate a prosecution. Only a clear violation of the Act proved by irrefragable evidence should induce the Board to give its consent to such a course. A restraining power should be vested in a disinterested body, so that when it moves it will secure public approval, I will go a step further, and say that no member of the Association should take upon himself to institute proceedings of his own accord, and after that ask the Council to support him in his action. I think it should be a set principle with the Board when they find that to be the case they should unhesitatingly say they cannot entertain the question. On all occasions the Board should imperatively require to be consulted before any gentleman commits himself to any legal procedure. My friend, Mr. Macleod, has had some experience in this matter. He brought out the fact that

the Association as a body could not prosecute, but that a private individual must always do so ; but the individual will be wise if he undertakes this duty only by and with the consent and support of the Board.

The objects of this Association are not only political and scientific, but also social, and include the relief of necessitous members of the profession by means of a Dental Benevolent Fund. It appears from the Annual Report of the Committee of this Fund, issued in August last, that about 7,000 circulars were sent out last year, and that only 200 responded. It is all very well to send out these circulars, but unless they are followed up by personal canvas it cannot be expected that any better results are likely to accrue. I see in the report it is suggested that local committees of investigation should be appointed, whose functions, however, would seem to be limited to the duty of enquiry into cases of distress to ascertain their eligibility to receive assistance from the fund. I would suggest that their duties should be expanded to that of collecting subscriptions, and that the Central Committee issue a circular after the appointment of the local committees stating they are authorized to receive subscriptions. They should be furnished with books of receipts with counterfoils in which the name, address and amount of the subscription of the contributor should be entered, and these counterfoils should be forwarded at regular intervals to the Central Committee with the sums collected. Every member of the Branch and all registered men would then come into personal contact with the local committee. The accession to the funds I have no doubt would be considerable. A committee of three gentlemen would, I think, answer all purposes, and should be appointed in all urban districts belonging to the Midland Counties Branch.

It only now remains to me to say that your newly-elected President is well known to you ; he is a champion for the maintenance of the Dentists Act, a warm supporter of the Benevolent Fund, and in every way worthy the confidence you have reposed in him. I wish him health and strength to go through his year of office, and that he may be the means of securing to the Midland Branch increased influence and importance.

Mr. BLANDY then took the chair and after acknowledging the hearty welcome accorded him, said the next business was the election of the Council, and a ballot having been taken, he announced that the retiring members, Messrs. Roff King, of

Shrewsbury, T. Mahonie, of Sheffield, and T. Murphy, of Bolton, were re-elected.

Dr. WAITE, and Mr. SIDNEY WORMALD were also re-elected as Hon. Secretary and Treasurer.

Mr. BLANDY then moved the following resolution:—"The members of the Midland Branch of the British Dental Association having learned that the secretary is about to meet the Dental Society of New York, at their annual meeting in May, desire to convey through him expressions of esteem and fraternal greeting towards the dental profession in America."

Dr. Waite was about to go America for a change and the Association could not have a better representative. They owed a great deal to their professional brethren in America, and he was sure the meeting would heartily agree to the resolution and would also wish Dr. Waite "God speed," and a quick return to health and to his own country.

The resolution having been carried by acclamation, Dr. WAITE said he was much obliged to the members for it. Such an expression of good will could not fail to meet with a hearty response.

Mr. A. M. MATTHEWS then moved the following resolution, thanking the Mayor and Corporation of Nottingham for their entertainment 'on the previous evening:—"That this meeting transmits its cordial thanks to Sir James Oldknow and the Committee of the Council of the Museum, for their kindness in receiving the Association in the beautiful galleries of that institution, and that the president, Mr. Blandy, be requested to communicate this resolution to Sir James Oldknow."

This having been seconded and carried, Mr. D. A. WORMALD (Bury) moved:—"That this meeting tenders its grateful thanks to Alderman Lindley and the committee of the Nottingham University, for their kindness in so freely granting the use of their splendid rooms for the demonstrations and meetings of the Association, and that the president be requested to communicate this resolution to Alderman Lindley," adding that he thought that those who had explored the beautiful building in which they were assembled would agree that Nottingham had good reason to be proud of its University.

The resolution having been put and carried, the President proceeded to deliver his inaugural address, which appeared in the last number of this Journal.

At its conclusion, Mr. BLANDY having intimated that, departing from the usual custom on such occasions, he invited discussion.

Dr. JOHN SMITH said it was perhaps right that he should be the first to thank the President on behalf of himself and the other members of the British Dental Association who were strangers in Nottingham for the kindly welcome they had received. He felt that he was only expressing the feelings of the meeting in saying that they desired to accord a hearty vote of thanks to Mr. Blandy for his very able, instructive, and interesting paper. He (the speaker) was old enough to have had personal experience of much of that Dental Reform Movement which Mr. Blandy had so graphically described. He could remember the time when the dentists even of a small town were as much strangers to each other as the dentists of Nottingham and those of Edinburgh or Norwich were now. It would be impossible at that meeting fully to discuss all the interesting and important matter which Mr. Blandy had touched upon in the course of his address. In the first place as to dental reform, there could be no doubt that as a professional body, dentists occupied a much higher position than they did thirty years ago, and also that the standard of education of its individual members was incomparably higher than it was even ten years ago, and was improving day by day. Mr. Blandy had referred to the Dentists Act as one which was better than no Act at all, and also remarked that it was not quite perfect. He (Dr. Smith) rather thought that was a characteristic of most Acts of Parliament, and with regard to this particular Act, it must be remembered that it was the first attempt to regulate by legislation the practice of dentistry in Great Britain, and was therefore to a certain extent tentative. It could not be foreseen exactly how it would work, and it was necessary to wait for the result of experience in order to ascertain what improvements might be suggested in the course of time. He thought there were very few amendments of any importance required in the Act. One was with reference to prosecutions. He thought an amendment might be introduced into the 4th clause by which not only the Medical Council and the Medical Authorities which granted diplomas might be authorized to prosecute or to authorize an individual to prosecute in their name, but also giving such an Association as theirs the right to prosecute, so as not to entail upon private individuals the invidious duty of prosecuting in their own name. It was not only an act which was painful to the individual, but the public was apt also to put a wrong construction on it and to attribute it to professional jealousy.

Then with regard to advertising by qualified practitioners, it

had been suggested that the colleges should take notice of this practice, and withdraw their licenses in cases where it is persisted in. But this opened up a very difficult legal question ; everything depended on the terms on which the license was granted ; whether any express stipulation on this point was made and agreed to, as was the case in the Edinburgh College. In some cases, he feared, the man might say, I have fulfilled all the requirements imposed by the College, I have passed the examinations, I have paid the money, our bargain is concluded. Under those circumstances it became a very difficult question to decide how far any College or licensing body could go in this mode of interference with the subsequent conduct of the licentiate, without the concurrence of the General Medical Council that his name should be erased from the Register. The General Medical Council's decision that the terms of an advertisement or that any other act by a licentiate is unprofessional is final under clause 29 of the Medical Act, and it is under this clause that the colleges would most likely act. It was very different with regard to a Fellowship. You might deprive a man of his fellowship, because that was granted as an honour, on the understanding that he had rendered himself worthy of it by the professional status which he had gained, and that he would do nothing to lower that status. So, also, with regard to the membership of this Association, a man was admitted on the understanding that he would conduct his practice in accordance with certain well understood rules, but in the case of a license to practice, although this might under certain circumstances be withdrawn for unprofessional conduct, it was still a doubtful and undecided point whether advertising except when decided as unprofessional could be legally so dealt with.

As to the Association, its object was to promote the best interests of the profession and to exercise a watchful supervision over them ; allowing that it was not invariably successful in all cases of prosecution, still the fact of prosecutions having been instituted, had a deterrent effect, and he had no doubt that the objectionable practices which still prevailed in some quarters would die out in time.

Mr. STOREY (Hull) said he had great pleasure in seconding the vote of thanks to the President for his address, and also in thanking Mr. Blandy for the welcome he had given his visitors. One of the chief objects of the Association was, he thought, the education of the public ; each member in his individual

capacity might do something in this way, but in their collective capacity they could do more, and he hoped that the address might produce a good effect in this direction. At one time he was of opinion that the Association ought to do a good deal of prosecuting, but he had now become a convert to the notion that the less of this kind of work it did the better, though of course it was necessary now and then. He wished to suggest whether it might not be of service if the Council of the Branch were to draw up a circular letter addressed to the different hospitals in the Midland Counties pointing out the importance of having a dental surgeon attached to the staff. Some of these institutions already had dental surgeons, but there were many, and some of them in large towns, which had not. This was the case in his own town, Hull, with a population of 180,000 people. He thought such a letter might have a good effect by calling general attention to the subject.

Mr. BRUNTON (Leeds) thought it would not be wise in the present position of the Association to send such a circular as had been suggested ; he feared that any such action would be looked upon rather as presumption. It was a matter which must be left to time. He thoroughly agreed with Mr Storey as to the disadvantages of the present system. He saw every day in his own practice the necessity there was for medical men knowing a little more about dental surgery. Many of them did not know the difference between a six-year molar and a deciduous molar. They looked upon dentistry too much as a specialty, and left it to dentists. He hoped that as dental schools were gradually established in the different towns of the kingdom, medical students would come to look upon the acquisition of a certain amount of knowledge of dental diseases as a necessary part of their education.

The vote of thanks to the President having been carried by acclamation, an adjournment was made for luncheon.

AFTERNOON MEETING.

After luncheon the members re-assembled for the reading of papers and casual communications, Mr. HENRY BLANDY, President, in the chair.

Mr. CRAPPER showed models of the mouth of a young woman, aged twenty-seven, who came to him requesting that her upper teeth might be extracted and an artificial denture fitted. On examination, it was found that her upper front teeth, though perfectly sound, were so short that it was impossible to see them when she

spoke or even laughed; the upper lip also dropped to such an extent as to produce the expression seen in cases where the teeth have been extracted and the gums have receded. The incisors did not meet by fully a quarter of an inch, and the bicuspid were the only teeth which antagonized at all. She said her friends constantly asked why she did not have some artificial teeth, being under the impression that she had none. Her articulation was very indistinct, just like that of an edentulous person. The teeth being, however, quite sound, Mr. Crapper refused to extract them, but pointed out that they would make an excellent foundation for the artificial ones. He therefore capped the natural teeth, and fitted a sectional gum block in front fixed on a gold plate by dental rubber. With the piece in, she could now bite and divide her food in a way she had never been able to do before, and not only was it a great convenience to her but also improved both her appearance and her articulation in the most striking manner.

Mr. Crapper handed round photographs showing the contrast in the patient's appearance with the teeth and without, and remarked that it was very rare to meet with cases in which artificial teeth could be placed over the natural ones with such satisfactory results as in this instance.

Dr. MARSHALL of Nottingham then read the paper on "Nutrition in Early Life as affecting the Teeth" which will be found at p. 279.

At its conclusion, Mr. CHAS. TOMES, having been called upon by the President, said he thought a paper of this kind was of great value to dentists, since it was impossible for them, shut up in their consulting rooms, and seeing only patients of an older age, to judge, at all events accurately, of the effects of feeding in early life upon the development of the teeth. Only those who had opportunities of watching children at an early period of life could form any opinion on the subject. Although, therefore, he fully appreciated the value of the paper, he thought it would be a waste of time for him to attempt to discuss it.

Dr. JOHN SMITH said he believed that the circumstances in which children were placed had a great deal to do with the perfection of the teeth as well as of other organs of the body, but he did not think that what might be termed local remedies were of value. With regard to the protective influence of saliva, that was a subject on which he had read a paper some thirty years ago which was published in the Edinburgh Medical Journal, and in which he

showed that wherever tartar was deposited in large quantities, there dental caries was less common than in other parts of the mouth. He believed that one of the uses of saliva was the protection of the teeth against the agents which Dr. Marshall had alluded to.

It was extremely interesting to go into the subject of infantile mortality, and to note the great difference that existed in our own time from that which existed years ago when much less was known with regard to the influences which would be beneficial to children. He had lately read an interesting book in which some remarkable facts bearing upon this subject were given. Thus it seemed almost incredible, though it showed how directly infant life was influenced by good or bad management, that amongst workhouse children about a hundred years ago twenty-three out of every twenty-four died under a year old. The chief causes of death were stated in this book, and amongst them was "teething," yet teething was not now considered a very fatal process, indeed it did not now appear as a cause of death in the Registrar General's reports. In a paper which he (Dr. Smith) had published on this subject, he had shown, according to the tables of Du Quetelet, that at the period at which the temporary teeth began to be erupted infantile mortality decreased and remained so until the completion of the process, and that when the permanent dentition came on the mortality fell in the same way. Now if teething had been a frequent cause of death, the mortality would have increased at these periods.

There could be no doubt, moreover, that the conditions influencing the mother during pregnancy had a decided effect upon the child, and these must be taken into account. There were instances on record in which very remarkable results had followed exceptional conditions of the mother during pregnancy. Thus it was related that out of ninety-two children born during a certain siege, sixteen died at the moment of birth, sixty-three died within ten months, and eight were idiots. The philosopher Hobbes ascribed his excessive timidity to the fact that before he was born his mother lived in constant dread of the threatened invasion by the Spanish Armada, which affected her to such an extent as ultimately to bring on premature labour. It would be admitted by all that the conditions under which the child was placed both during the foetal state and in early infancy, must have a great influence on the development of the teeth and other organs of the body.

Mr. OAKLEY COLES said he was not sure that our present

methods of observation were sufficiently exact for the determination of the truth in regard to these matters. There was also another point to be considered—viz., that if it be insisted on the one hand that teeth are now more vascular than they were, containing a larger vascular supply and a smaller amount of inorganic tissue, and that therefore they are less reliable, it was necessary to determine whether that condition in a perfect state of health was inimical to the continuance of the organs. In other words, was not the higher vascularity which may attend certain organs of the body under the present condition of civilization as contributive to health as a denser structure in earlier times? It was true deterioration is much more rapid under present conditions; but if that be put forward in argument the reply was that nutrition was also more rapid. The whole of the argument appeared to be based to a great extent on hypothetical grounds, because there was no exact method by which the relation of density of structure to the power of resisting disease could be determined.

Mr. J. S. TURNER said he hoped that amongst the speculations as to the vascularity of teeth, and other interesting points of scientific interest, the real value of the paper which had just been read, and the practical observations which had been made by Dr. Marshall as to the regularity of diet, which was so essential for the health of children, would not be lost sight of. As Mr. Tomes had already observed, the dental profession had to look to the medical for assistance in these matters, and he (Mr. Turner) hoped that this was only the beginning of the attention which medical men would give in future to this important subject.

Mr. STEWART (Liverpool) said that as an old practitioner he should like to ask one question. How was it that, in a large family of boys and girls, delicate children were met with who had the most robust teeth? He thought most of those present would bear out his experience, that it was not uncommon to meet with young men and women who were evidently doomed to death, yet who required no attention so far as their teeth were concerned, whilst their more robust brothers and sisters were suffering extensively from caries.

Mr. KING (Newark) said he had observed the same thing occasionally, but so far as his experience went it was exceptional. It seemed to be a fact that infant mortality had been greatly diminished, and he thought that from this increased care in rearing children, and the general use of artificial foods of all kinds, more

delicate children were reared, and these afforded work for the doctor and dentist all through their lives.

Dr. MARSHALL, in reply, said he had not come forward to teach them how to cure dental caries, but to draw attention to certain practical points in the rearing of children, and the care of pregnant women. He considered fresh cow's milk decidedly the best thing for hand-fed children; it was impossible to rear as healthy a child on condensed milk as on fresh. He was not a believer in the "one cow" system; when the produce of a number of cows was mixed the result was very uniform. He admitted that delicate children sometimes had good teeth, but it was a fact scarcely worth taking into consideration. With reference to Dr. Smith's remarks as to teething being a cause of death, he (Dr. Marshall) would be disposed, for teething, to read rickets.

Mr. F. HARRISON, of Sheffield, then read a paper on "Preparing Tissues for Microscopical Examination," which will appear in our next number.

A vote of thanks to Mr. Harrison having been proposed by Mr. D. S. Hepburn, seconded by Mr. Matthews, and carried,

Mr. L. MATHESON read a paper on "Artificial Separation of the Teeth as a means of facilitating Filling, and as a Permanent Operation for the Prevention of Decay," which we shall also publish next month.

Mr. D. S. HEPBURN regretted that there was not time to discuss Mr. Matheson's paper as it deserved. It was one which involved a number of practical points of a very interesting and instructive character. He agreed that separating the teeth by means of tape was less painful than when rubber or wood, or any other means were employed. There was no doubt that rubber would move the teeth more quickly, but the pain caused by its use often made it necessary to give it up. When, however, movement had been once started rubber was very useful. The permanent separation of teeth was also a subject which opened up a number of wide issues. It was a plan which was useful in a certain number of cases, but which required great care in its application. The result of his own limited experience was that many patients would not take the trouble to keep these wedge-shaped spaces clean, and no amount of care on the part of the operator would avail unless he had the co-operation of the patient.

The PRESIDENT, after remarking on the interest of the paper, said he attached great importance to getting sufficient room before

putting in a filling. It was no use putting a bad stopping into a badly decayed tooth, and, in order to make a good filling, it was necessary to have a clear space to work in and to obtain command of the cavity. On the other hand, it was, of course, possible to carry the practice to an extreme, and to cut away too much; indeed, he had known some operators file teeth until they resembled those of a garden rake more than anything else.

Mr. MATHESON said he was glad his paper had raised a little discussion. He admitted that it was possible to go too far in the matter of separation, but he thought the profession were much indebted to a man like Dr. Arthur, who had put the whole question in a very clear light, though he himself carried it to an extreme which few operators would imitate. Great discrimination was required in this matter. But where the teeth were fairly strong, and the operator capable of inserting good contour fillings, he would say by all means keep the natural contour.

On the motion of the President a vote of thanks was then passed to the ex-President, Mr. Harrison, and to the Hon. Secretary and Treasurer, and, Mr. Harrison having briefly expressed his acknowledgments, the meeting terminated.

DEMONSTRATIONS, &c.

Two well-lighted rooms were set apart for this purpose. Mr. R. F. H. KING, of Newark, filled an upper bicuspid with gold according to the Herbst method; the operation, which was very successfully carried out, was watched with great interest by a large number of spectators. The tooth had been previously prepared, and the nerve destroyed by Mr. Blandy. Mr. Helyar of Bristol had also undertaken to fill a tooth with gold, but to the disappointment of many, wrote at the last moment to say that he could not come, and there was no time to secure another operator.

Mr. BOWMAN MACLEOD gave a demonstration of taking plaster casts in the mouth. Mr. G. Brunton showed his method of doing vulcanite work by the steatite process. Prof. A. H. Simpson, of the University, had prepared at great trouble some very interesting electrical exhibits, the most interesting of which was, perhaps, an ordinary turning lathe, in which he turned a piece of hard wood, driven by a dynamo of his own construction. He also showed a small accumulator, measuring seven inches by four and two thick, which, after being charged with electricity from a small battery,

could be transported to any distance and then used for illuminating or motor purposes. It was suggested that this might be very useful to the visiting dentist. Some electrical appliances were also exhibited by Messrs. Woodhouse and Ransom of London.

Mr. BLANDY and Mr. MANTON, of Wakefield, exhibited some interesting pathological specimens and curious old instruments; Mr. Oakley Coles, a collection of cleft palate models; Messrs. Renshaw and Dykes, a collection of models illustrating the treatment of irregularities; Mr. Stewart Hepburn, some old carved bone plates, &c., &c. Messrs. Ash and the Dental Manufactory Company also showed a large and varied assortment of instruments, teeth, and appliances.

THE DINNER.

The usual dinner took place in the evening at the "George" Hotel. The President, Mr. Henry Blandy, occupied the chair, and amongst those present were, Drs. Marshall and Wright, and Messrs. Alderman Lindley, Burnie, Ryan, Hatherley, Snell, and Anderson of Nottingham, Messrs. Job and Matterson of Newark, Prof. Simpson, Dr. John Smith of Edinburgh, Messrs. C. S. Tomes, F. Canton, E. Knight, and most of those who had attended the earlier meetings. The President read letters of apology from Sir Edwin Saunders, and Councillor Jacoby of Nottingham.

After dinner, "The Queen and Royal Family" having been given by the President, Mr. KING, of Newark, proposed "the Mayor and Corporation of Nottingham." He congratulated them on the improvements which had been carried out in the town during the last few years, and especially on the way in which its educational facilities had been developed.

Mr. ALDERMAN LINDLEY replied; he was very gratified to find that the improvements which had taken place in the town, and with which members of the Corporation were identified, had been watched with interest by friends at a distance. They (the Corporation) desired to make Nottingham the Queen of the Midlands. The Castle and its Museum were now visited by thousands of people every week, and he wished the members of the Association could have seen the University College which they had visited that day, crowded with its hundreds of students. The Corporation had endeavoured and would endeavour to do the best they could for the advantage of the town both educational and commercial.

Dr. BURNIE then proposed "the British Dental Association and its Branches." He thought that all present, visitors as well as members, must sympathize with the objects of the Association; they were most meritorious in themselves and were being energetically carried out. There was one feature in the dealing of the Association with those outside of which he highly approved. Any registered member of the dental profession was eligible for admission, provided he was guilty of no unprofessional practices. It did not matter what he might have done in the past; if only he expressed regret and promised amendment for the future, the door was open to him. He had the greater pleasure in proposing the toast in that he was enabled to couple with it the name of a gentleman so distinguished as Dr. John Smith, who had travelled a long distance to be present, and who was not only President of this Association but President of the Royal College of Surgeons of Edinburgh, so that he had been selected by two learned professions for the highest honour they had to bestow. He would also couple with the toast the name of Mr. F. Canton, the hon. Secretary of the Association, a gentleman who bore a name as well known in the medical as in the dental profession, and who discharged his duties in a most able and effective manner. He asked them to drink "Prosperity to the British Dental Association and its Branches" and to couple with the toast the names of Dr. John Smith and Mr. Canton.

Dr. JOHN SMITH expressed his acknowledgments for the toast which had been so kindly rendered, and so warmly received. He fully appreciated the compliment, which he was satisfied the members generally felt to be one which could not be too highly valued. He congratulated those present upon the success of the British Dental Association. He only wished that every dental practitioner would join it, because it was an Association which was absolutely necessary for the enforcement of the privileges or penalties contained in the provisions of the Dentists Act. It was somewhat different with regard to the medical profession. There were throughout the civilised world bodies of men ready to enforce the Medical Act; there were Universities, Colleges, and Associations of various kinds, composed of medical and surgical practitioners. But the Dentists Act must be enforced either by the Dental Boards, elected by the authorities which conferred the dental diploma, or better still by a body of associated dentists, seeing that in many cases, as many of those present would bear him out, it required a

knowledge of the technicalities of the art to carry out these prosecutions. He therefore considered the Dental Association a necessary body, equally as necessary for enforcing the Dentists Act as the Medical bodies were for enforcing the Medical Act. He need not refer to other advantages of the Association. He would not refer to what had been already done in regard to the Benevolent Fund, nor would he allude to the social gatherings which the Association had promoted amongst the dentists of Great Britain, such as they had evidence of that evening, nor to the Journal which it had so successfully carried on. He would not say anything on these subjects, but leave Mr. Canton to reply.

Mr. CANTON said he had great pleasure in responding to the toast. He often heard it asked, "what is the use of the British Dental Association? What good does it do?" Well, he did not think that five or six years ago such meetings as the present could possibly have been held, or that it would have been possible to obtain the use of the Colleges and Universities which had been so freely placed at the disposal of the Association by the authorities whenever application had been made. He thought he might fairly claim that the Association had been the means of bringing this state of things about, and not only so, but it had been the means of bringing about what was far more important still, and that was a better and more friendly disposition individually amongst the members of the dental profession. It was not possible for all to attain to the high position now held by Mr. Blandy, but every dental practitioner could do good in his way; first, by joining the Association, then by getting others to join, and then by conducting his practice in such a way that no one could bring reproaches against the profession. He would impress one thing upon all members, and that was the absolute necessity of keeping thoroughly and well united; for, if discord once broke out in the Association, instead of progress, there would be a falling back. It must be remembered there was a large number who are most jealously and carefully watching our Association, and if they could see anything of that kind occurring, it would give them great satisfaction. Not only so, but at some future day when further legislation might be necessary, the profession would have little difficulty in getting it if it could only act as one united body.

Mr. CHAS. TOMES proposed the "Castle Art Museum and University College of Nottingham." He thought everyone present

would join with him in giving their cordial thanks to the governing bodies of the Museum and University for the hospitable reception they had accorded to the Association.

Mr. WALLIS, in reply, said the chief trade of Nottingham was closely allied with the Fine Arts, especially with Decorative Art, and it was therefore most important to have a Museum where decorative objects could be exhibited and seen by the people, and he was happy to say it was highly appreciated by them. He was very pleased to hear that the members of the Association had enjoyed their welcome there on the previous evening.

Professor RYAN also replied in a very humorous speech.

Dr. WALKER in proposing the "Medical Charities of Nottingham" said he was very pleased to see so many medical visitors present, and he hoped that they would use their influence to obtain for their hospital patients the advantage of the services of a dental surgeon, such an appointment being at present the exception as regards the Nottingham hospitals.

Mr. HATHERLEY, in reply, said he cordially endorsed what Dr. Walker had said as to the advantage of having a dental surgeon attached to the staff of their hospitals; he should be very glad to see one appointed at the General Hospital. Of late years the status of the dental practitioner had been very much raised, and he hoped Nottingham would not be behind other towns in adopting the course suggested by Dr. Walker.

Dr. MARSHALL, also replied, observing that he had long felt that it would be an advantage to him to have the assistance of a dental surgeon in his hospital work.

Mr. BOWMAN MACLEOD then proposed "The Benevolent Fund." He asked them not only to drink to the prosperity of the Fund, but at the same time really to consider its necessities, and if not already subscribers to subscribe at once.

Mr. OAKLEY COLES remarked that unfortunately the Dental Benevolent Fund was not at present much to respond to. Out of 7,000 practitioners less than 200 were subscribers, whilst every few days he received applications for help from widows and orphans and men broken in health. The cases he had to deal with were a scandal to the profession, and in addressing a meeting like that he felt disposed to express himself very strongly on the want of Christian charity shown by it. So long as the Benevolent Fund continued in its present state it would be a reproach to the profession. He earnestly appealed to them to raise the Fund to a more respectable position.

Mr. ROFF KING proposed the health of the President. It was a toast which required no oratory to make it acceptable. Mr. Blandy not only enjoyed the confidence and esteem of his patients and fellow-townsmen, but also of his fellow-practitioners. His influence had been shown by the reception they had met with at Nottingham. There could be no doubt but that the Midland Branch would prosper under his guidance.

Mr. BLANDY, in reply, said he thanked them all for coming to Nottingham, and he specially thanked the readers of papers. He thought all had gained valuable information in the course of the meeting. He thanked them heartily for their reception of the toast.

Mr. BLANDY then proposed the health of the Local Hon. Sec., Mr. Stewart Hepburn, who had worked very hard for the success of the Meeting.

Mr. HEPBURN having briefly replied, Dr. Smith asked them to drink to the health of the President-elect, Mr. Matthews, of Bradford.

Mr. MATTHEWS expressed his thanks, and assured the members that when they came to Bradford they would meet with as warm a reception as they had received at Nottingham.

The proceedings, which were varied by some excellent music, were then brought to a conclusion.

ORIGINAL COMMUNICATIONS.

Nutrition in Early Life as affecting the Teeth.*

BY LEWIS W. MARSHALL, M.D.,

SURGEON TO THE CHILDREN'S HOSPITAL, NOTTINGHAM.

I HAVE to thank you, gentlemen, for the honour conferred upon me by your society in asking me, as a representative of the Medical Profession, to address you to-day. It is with great pleasure but with extreme hesitation that I do so. It is my object to shew that we who are engaged in a more general and comprehensive view of the human frame, recognise how necessary it is that some explanation and remedy should be offered for and

* Read at the Annual Meeting of the Midland Branch at Nottingham on the 17th ult.

against the undeniable increase in tooth-decay. It is not likely that I can offer to you such an explanation or remedy, or that I can add anything to the great work already done by those who have paid special attention to this subject. I may, however, be able to turn the attention of those present to-day to a line of thought which appears to me, after somewhat limited enquiry, to have been imperfectly followed out.

Dental caries, I am thankful to see, has recently come before the Poor Law Authorities, at least in one district, and a new departure has been made by the appointment of a surgeon-dentist to the workhouse school in that district. His duty will be to correct the hitherto routine practice of unlimited and early extraction. We medical men know full well how necessary this step is. Ill-health—the result of imperfect assimilation—and consequent inability to do the work which might lift the individual from his humble position, is the inevitable termination to such neglect and error in practice. To you, as dentists, this new field for observation cannot but fail to give, as hospital work does to us, a larger area for enquiry. By this means it is possible much light may be thrown on the subject now under consideration, because this practice will be amongst those who are the offspring of the poorly nourished, and who have themselves suffered both in their embryonic and separate existence, from equally unhealthy surroundings. I heartily hope that this new field may be productive of much good work, and that it may prove so, it is, in my opinion, essential that there should be a cordial co-operation between the dentist and the doctor.

In preparing this paper, I have read through several papers written by members of your own body, and some by members of my own profession, and I have been struck with the marvellous difference in the opinions as to the chief causes of dental caries. The remedies suggested are multifarious. One writer—Mr. Sewill, deals with the question in a comprehensive way, and appears to me to shew much more clearly than do other writers the direction in which elucidation of this mystery is likely to be effected. He insists upon accuracy as to facts, and a true appreciation of the general causes calculated to affect this destruction. Quoting from his paper, I find he says; “Never before was the public health so well cared for, and never was there such comparative freedom from most diseases which leave their mark on the constitution of the victim, and lead to degeneracy in his descendants. Of living

racess, the British is the most exuberantly fertile. The higher classes, although luxurious are not enervated." I should be disposed to question whether diseases that "leave their mark on the constitution of the victim" are less common. Indeed I should say, that tuberculosis and syphilis are more so. The former is produced by the higher pressure which increased civilisation saddles on the rising generation ; and the latter is more rapidly diffused by the greater facilities with which large towns are approached by outlying districts. I question also the statement that "the higher classes . . . are not enervated."

All classes live faster, and the battle for life is harder. These factors lead to rapid waste in our nerve power. In both sexes this waste is met with ; markedly so by comparison with past generations of women in the upper classes. Mr. Sewill, in speaking of the people in the United States refers to the "insanitary lives led by ladies." Are we so free in this respect? I am disposed to think not ; and the fact of the imperfect way in which the average English lady suckles her offspring, even when desirous to do so, is, I think, evidence not entirely to be set aside. So much for the parents. Of the children the same writer says ; "at no previous period were children of the well-to-do classes in highly civilised states, on the whole so well housed, or cared-for hygienically as at the present day." Whilst admitting the statement as to habitation and clothing, I speak with grave doubt as to the hygienic care of the offspring. The propensity to hand over the child at an early date to the feeding-bottle, with its multitudinous contents, is steadily on the increase. It may appear somewhat irrelevant for me to criticise so freely the words of one writer ; but as before stated by me, Mr. Sewill's papers take a wider grasp of this subject than any of those which I have seen. I am therefore naturally led to accept his arguments and statements as those of your profession. Before dealing with the question of the child, it is very necessary to consider those factors which may have influenced the developmental process prior to birth. For this reason I have felt it very necessary to insist upon my opinions expressed above. The fact of the teeth being far advanced in development during intra-uterine life, makes it certain that organic deterioration of enamel must be accounted for by some process which is in action before the child is born.

Of the various causes assigned by writers for the production of caries, hereditary tendency is insisted upon as one which aids much.

I recognise fully the power which transmitted diseases—such as gout, syphilis, &c., possess, but I am disposed to think that these causes are often placed too prominently forward by your profession.

The want of care, and the ignorance displayed by the mother in the management of her own health during the time of pregnancy, are probably no unimportant agents. Let these agents be added to the “enervation” which may exist on either side, and we may fairly calculate on a weakly progeny.

The imperfect measures adopted for the future well-being of the child supply one thing needed to complete the unnatural process.

It is now generally admitted, I believe, that deterioration of enamel is actually taking place, although writers differ on this point. When present, however, the decay of the teeth must necessarily be much more easily accomplished, because this destructive action always begins on the surface of a tooth. Even healthy enamel will not withstand the several acids which may be brought to bear upon it later in life.

Before leaving this subject, I would mention an observation which I have made in my out-patient practice. In the same badly-nourished child, there is to the eye a wide difference in appearance between the enamel of the two upper central incisors, and their opponents in the lower jaw. These teeth amongst the temporary set are always the first to decay. A reason, I know, is assigned for this in the fact that the alkaline saliva protects the lower teeth from the injurious effects of buccal secretions which have become acid. If my observation is correct, this reason does not explain the whole matter. Why should this difference exist between two sets of teeth developed at or about the same period of uterine gestation, and presenting themselves in the mouth in succession to the other set? I can offer no explanation for what I consider to be a fact. With thus calling attention in a general way to the things which may be considered if dental caries is to be explained, I would pass on to the more specific part of my subject, viz.—the nutrition of the offspring.

This subject is one in which I take a deep interest, and I am disposed to think that on this side of the question comes much which will tend to throw light upon the matter. I have before referred to Mr. Sewill's statement that the children of the present day are better cared for than were those of previous times, and at the same time pointed out the imperfect manner in which the natural

food is secreted, or, if secreted freely, imperfectly given to the child. When mothers' milk is used, amongst all classes of society, but much more so amongst the upper and middle classes, it is used in a half-hearted way. Convenience is pleaded as the chief excuse for not carrying out Nature's plan. But, for the sake of convenience and economy, the lower classes find it wiser to use their own secretions. The half-hearted way referred to is this: A mother, who has, perhaps, a plentiful supply of her own milk, finds it more in accord with her wishes to give some mixture of cow's milk, or, very commonly, Swiss milk, because at an early age this preparation leads to less immediate ill effects; if not either of these, she will do worse still, and give one of the many malted, or unmalted, farinaceous foods. Many children who are the offspring of strong parents, appear to go through their infant life with comparative health and happiness, the other health factors being sound; "fat and fit for a Baby Show," as the expression is. Such a child may be liable to occasional bronchitic attacks and diarrhoea, which the mother thinks are the necessary sequence of advancing teething; the teeth being delayed, or, as is not uncommon, cut very early. This is a hasty sketch of a child so reared. The inevitable result of this system is that the general plan of development is upset, and a child apparently healthy and thriving is in fact rachitic. It may never pass on to the advanced stage of bone-distortion, recognised as rickets by the public, but the mal-nutrition and disordered development, with the various digestive troubles, exist. The above description calls attention to one of the many errors in rearing babies, and that is the early use of some food to supplement the mother's milk, the least injurious being cow's milk. The chief error, I may say in passing, in the use of this product, lies in the way in which dilution is practised, and the mode of preparation of the meals. Some boil their milk, others do not. Some give half milk and half water during the first month, or even week, of life, others give a preparation of less strength. The careful adjustment of a cow's milk diet, either to be used in conjunction with mother's milk or alone, is in reality a matter which hinges upon the true appreciation of the general principles of hand-rearing of infants; and nothing, in my judgment, requires greater skill or acumen in nursing—using the word in its broadest sense—than does this. Each child has to be dealt with as a separate case, to which general rules alone can apply; differences in detail must necessarily arise. This is directly

opposed to the general idea that the experience of one mother is of value to a second in the matter of feeding, even though both use the same food. To return to the subject of this paragraph—another error is—and this is more commonly found amongst the poor—that mothers suckle their children too long. Human milk, in common with cow's milk, reaches its highest point of nutritive value at or about the third or fourth month, and it remains more or less stationary in the healthy woman up to the ninth month. After this period it deteriorates, both in quality and quantity. The quantity may be maintained by the use of malted liquors, although the nutritive value is probably never increased by such means. To suckle a baby up to the twelfth month is very common, and in my out-patient practice I even find cases of suckling being continued up to the eighteenth month, or second year. How under these circumstances a healthy child is expected to be reared, it is difficult to say.

Now to deal with the hand-rearing of children from the date of birth. Usually the first month is the time when, under the most careful management, troubles and discomforts will arise. That period when the machinery is called upon to act alone, and to become educated into that harmonious action which is called health, is devoted to the trial of numberless preparations only too commonly farinaceous, and harm is done which will take endless time and care to undo. It is during the first and second months that the groundwork is made for subsequent digestive troubles, and the inevitable failure of all organs in the carrying out of their functions. This leads me up to a point of special interest to those whom I am addressing. In these digestive disorders lies the clue to much of the tooth destruction which is found. The ill effects of error, even at this early date, are not easily set aside, and, although to a limited degree, are more or less present even up to and after the term of infancy has expired: I mean the second year. Evidence of this want of attention to the general rules which should guide us may be found even up to the age of puberty, and therefore after the age at which the second dentition begins. As a result of this casual and haphazard system of feeding, the bones of the face suffer, in common with all the components of the body. The rachitic face, or, as we know it at the Children's Hospital, the "starchy baby," is easily picked out. The teeth are found small in size, crowded or irregularly placed; serrated on their margins, and bad in colour. All these children

are specially liable to constantly recurring stomatitis, and when not present in this pronounced form, we find the sweet-smelling breath with red tip to the tongue, which points to rapidly changing secretions in the mouth. No care appears to be thought necessary to protect the teeth from the destructive power of such secretions. During the period of suckling, or even, I will say, the first year, the child's mouth may be looked after; but even this is done in a perfunctory manner — "Washed out night and morning," the nurse says. Is this sufficient to counteract the damaging tendencies of the agents which are present in the mouth? I think not. When the child is launched into its second year, even this imperfect precaution is relinquished, and the teeth look after themselves until the age of school life, when the dignity of a tooth brush is usually conferred.

I am in the habit of insisting upon the use of some agent to protect the teeth during these earlier years, such as salicylate of soda or boracic acid.

Previous writers and readers of papers for your society, those at least amongst my profession, as well as many amongst your own, have urged the use of certain foods which may appear to possess chemically the agents needed for the production of bone and therefore teeth. You will gather from what I have said that this choice in foods appears to me to be very secondary.

It is, I think, quite a delusion to use phosphates, whether as a food or medicine, in the hope that the enamel may be made more enduring, which enamel is developed antecedent to the birth of the child. What is really required, even were it possible to modify the enamel in that way, is to regulate, and to restore to health those organs which, if I may so express it, are all awry, and unequal to the assimilation of such matters. In these cases of rachitis and malnutrition, the urine is more commonly than not found to abound in phosphates, and an alkaline urine is no uncommon cause of enuresis which, however produced, frequently exists in rachitic children. Nature is actually throwing out what it appears to be so necessary she should conserve and utilise. This appears to me to point strongly to the general conclusion that I have now arrived at, and one which I offer to your society for what it is worth. That the malnutrition caused by ignorance and non-attention to the general rules which guide those of us engaged more especially in children's work, is answerable for a vast amount of the destruction in teeth. It would be foreign,

I think, to the object of your society for me to do more than refer in general terms to the measures which are considered necessary for the maintenance of that perfect state of health which alone can give us what we mutually seek for.

Before all things it seems to me needful that our girls should be educated on a physical basis, which shall ensure a standard of health fitting them to become mothers. Upon such health rests the physical and mental condition of future generations. Whilst not being in the least desirous of underrating the value of mental attainments, I am fully impressed with the need for modification in the physical training of girls, which is only too commonly neglected. With this training must come an improved power of supplying the natural food to the offspring, and let us hope the mental culture will also show the moral obligation under which the mother is placed to her child.

Whatever means are employed in rearing children, certain general rules must be observed. That which is probably most neglected is the time for giving meals. A fixed and definite period of time must be set down for each meal, and the interval be rigidly maintained in accordance with age. Sleep, during the daytime, is no excuse for irregularity in this particular. It is as easy to educate a child in good ways as in bad ones; and by determination at first, a child may be regulated as an alarm clock to wake up at the times fixed for feeding. Simple though this matter may seem, much hangs upon it, and much discomfort and dyspepsia is due to its non-observance.

Besides regularity, the quantity and quality of the foods employed must be considered. In quantity I find no sort of definite idea is arrived at by the average nurse. She fills her bottle and allows the child to take what it can. The child being very commonly ill-fed, both as to time and food, is "greedy" and takes more than it ought. There is a distinct quantity which will be tolerated by the average child at different ages, and it is unwise to give more.

Of the character of the food I am induced to speak more freely.

Milk in some form is the only food which should be used at an early age, and cow's milk I prefer to any other, because according to the analysis given in Pavy's work on Foods, cow's milk "most closely approximates to that of woman, but it is rather more highly charged with each kind of solid constituent." Asses' milk

and mare's milk are easily digested by children on account of their deficiency in nitrogenous matter and butter, and from the fact that they contain a large amount of lactine. Condensed milk of any brand is equally well digested. Fat and apparently healthy children are reared on it. It is much in favour with nurses because it is so well tolerated, but as shewn in a paper in the *Lancet* of November, 1872, the bulk of the child is only due to fat, and a time soon comes when the want of the solids declares itself. The chief objection to cow's milk, viz. : the preponderance of casein and the dense curd formed, has been most ably met and overcome by a suggestion of Frankland. By preparing the milk in a certain way, he has enabled us to get rid of the curd, and at the same time retain the valuable qualities of the milk. I am in the habit of using two forms of "Frankland's milk." The weaker kind being diluted with half whey ; the stronger having one-third dilution only. To these is generally added the cream from $\frac{1}{2}$ -pint of milk. I use at an early age the weaker preparation diluted with water, and subsequently add cream, so that the proportion of fat and salts is largely increased. Where cell growth is going on rapidly there we need fat. Cream is the most suitable means by which to give this. The nutritive value of the food is increased by the addition of cream, and the ease with which the milk is digested is not so readily interfered with.

Milk in some form I say is the best and only food which should be used up to the sixth month. After that date, some one of the good malted foods (Mellin's by preference) may be taken. Thin broth and beef tea, being added to the dietary at, or about, the eighth month, with rusks and the yolk of egg about the eleventh month. Chapman's Food—which contains the phosphates—may be advantageously given at the tenth or eleventh month. After the first year, the diet of a healthy child becomes comparatively simple. I am disposed to think that the value of the farinacea is overrated, and that their abuse is very frequently answerable for the digestive troubles so often met with, even at so late a period as the sixteenth month. Even up to the second year, milk and cream must be our sheet-anchor, if a healthy child is to be reared ; and the child that takes most of these in the twenty-four hours will thrive best.

As stated at the outset, gentlemen, I have endeavoured to direct your thoughts into a channel which may help somewhat towards the prevention of dental caries. I can only hope that my remarks

may prove of some value to my hearers. My desire has been to shew that the frequent attempt to correct the destructive process we are considering by a selection of foods alone is insufficient, and that if this matter is to be improved, we must deal with it on a larger basis, and consider first, the mother and her offspring as one ; secondly, the offspring.

The latter part of my paper has been devoted to pointing out briefly, the gross errors which exist, and are daily in action in the rearing of children. The troubles which arise as a result of these errors can be avoided, and to this unhealthy method of living, I believe, is to be attributed in some measure, imperfect tooth formation and early decay.

Sensitive Dentine.

BY R. F. H. KING, L.D.S.Eng., Newark.

MR. TOMES tells us that "cases are not infrequently met with in which the carious dentine possesses such an exalted degree of sensibility, that its removal cannot be borne, and the patient flinches from the slightest touch of any instrument."

This, I think, will be borne out by all of us in every day practice, and various suggestions have been made to deal with the difficulty. Ether, chloroform, and other agents have been used with a view to deaden sensibility by a kind of local anæsthesia. In the January number of the *Independent Practitioner*, page 32, Dr. Allen G. Bennett "recommends the use of alkalies, antiseptics, or local anæsthetics in the cavity, when the condition of the tooth calls for them. In frail, sensitive teeth he protects the dentine from contact of metallic fillings by a non-conductor."

Dr. Gerhart suggests "that when the rubber dam is on for a long time, especially when the hot air syringe is used and the cavity becomes perfectly dry, the tooth contracts owing to loss of moisture ; the filling being put in while the tooth is in this condition, will not fit as accurately when the tooth returns to its normal state."

"This gave rise to a long discussion, some contending that no change takes place, others that the tendency will be to make a more accurate fit between the tooth and the filling ; and others again, that this change, though slight, is a source of danger and the frequent cause of failures." 51

I shall endeavour to show that these are the most favourable conditions possible in which a filling can be inserted ; but a distinction will be made between shrivelling up the whole body of the tooth with the hot-air syringe so as to alter the shape, and drying up a zone of dentine by the natural heat of the body, radiating from the floor and walls of the cavity for a short distance, sufficient to obtund sensibility and secure an absorbing surface to take up whatever you apply, so that whatever moisture is displaced from within is replaced by the agent you apply, and the cavity being then hermetically sealed from without by the filling, no appreciable change can take place. Others, again, advise the use of escharotics to destroy the vitality of a limited portion of the tooth, or that part immediately under the carious portion it is necessary to remove. It is generally admitted that these should be avoided if possible, and I think the anæsthetic effect of any of the other agents is very doubtful, and due to quite another cause.

There is no sensation in tooth bone itself, except by neural connection with soft tissues, and to quote again from Mr. Tomes, he says : " That dentine owes its sensation to the presence of soft tissues in the tubes cannot, I think, be readily doubted, seeing that if the connection with the pulp be cut off by the destruction of the latter, all sensation is at once lost." And further on he says : " This much only is certain, that sensation is conveyed by some soft contents of the tubes, whether by the fibrils or by something else cannot be positively stated."

Accepting the theory that sensation is conveyed by some neural kind of soft tissue, the idea immediately occurs : Why not dry it up, and all communication with the pulp will be at once cut off, as it is no longer soft ? and if once dried up and treated as I describe, I doubt if it could ever recover or become sufficiently soft to circulate neuria without moisture from without. Moreover, we now propose when the fibrils are dried up, to fill up all interspaces with a medium that shall block the return of any fluid whatever from within, while it is sealed from without by the plug, and for this purpose I have used for many years a thin solution of gutta percha dissolved in chloroform. It is a non-conductor, and lessens the chance of after trouble from thermal changes ; it prevents the possibility of capillary attraction, and if unfortunately the plug should not be perfectly water-tight, the mourning is not so deep as it otherwise would be.

In the *Independent Practitioner*, for April, 1884, p. 181,* Dr. Bödecker says:—"I took two lower bicuspid roots which had just been extracted, I removed everything out of the canals by means of a burr, after which I filled one of these roots with solution of gutta percha without any further delay. The canal of the other root, however, after it was drilled out, I washed out thoroughly with absolute alcohol before the gutta percha was introduced. After two or three days, when the filling material had hardened, I split both these roots, and by placing them under the microscope, found that where I had used absolute alcohol for the dehydration of the pulp canal previous to the introduction of the filling material, the dentinal canaliculi were filled for a little distance with gutta percha, whereas in the other root, I could see no gutta percha in the dental canaliculi. The results induced me to lay aside all other filling materials for filling root canals. The method of introducing the filling is as follows: To an ounce of a rather thin solution of gutta percha in chloroform, I add about 5j of powdered iodoform. Of this solution I introduce one or two drops into the pulp canal, and with a smooth broach force it up to the apex."

It will be here observed that alcohol was used for the purpose of dehydration only, and I think the advantage generally claimed for any of these evaporating agents will be due to this cause rather than to any anæsthetic effect in obtunding sensitive dentine.

I took a decayed lower molar I had extracted a day or two previously from a young subject, and treated it in a similar manner, except that to the gutta percha solution I added a trace of violet ink. I then laid it on one side until the morning, when I ground away all the enamel from the masticating surface, and with a thin circular saw on the engine, I cut out a perpendicular slab; this I ground as thin as a wafer on a piece of cork, and placed it under the microscope. It has the appearance of a bundle of white and violet fibres running through the whole specimen; the violet in belts largely predominating.

It will have been observed by many of us that a patient will permit the excavation of a tooth when dry (the nerve not actually exposed) which he could not bear you to touch whilst wet, or even moist, and the degree of insensibility will be found to be in

* "Iodoform in Dental Surgery": see also JOURNAL OF THE BRITISH DENTAL ASSOCIATION, for August, 1884, p. 503.

proportion to the dryness obtained; and though this may be sufficiently complete in one situation it may be only comparative in another.

Take a tooth for instance. The patient draws the nail over the smooth surface (probably a case of erosion) and tells you it gives pain; put on the rubber dam, dry it up, and you may drill it out and no inconvenience will be experienced, taking care, of course, not to allow the engine point to become over-heated.

To take another example. You are consulted by a patient, and upon examination you find the whole of the approximal surface of the superior incisors more or less decayed, and so sensitive that to touch them with an instrument is out of the question. Apply the dam to all six teeth, take the least sensitive tooth to begin with, drive out all moisture with absolute alcohol, dry it up, and all sensation will have disappeared. By the time you have completed the operation, though the others were so abnormally sensitive before you put on the dam, and though you have applied nothing to them by way of dehydration or anæsthesia, you may proceed to fill without inconvenience to the patient, all sensibility having disappeared with the moisture, provided, of course, there is no other complication.

I was consulted by a patient who had been masticating on the front teeth for some years. The enamel had worn away, the dentine exposed, and the upper teeth were so sensitive that mastication became a tedious and painful process, and breathing cold air very troublesome. I touched the surface of each tooth with a fine corundum wheel, put on the dam, applied alcohol a few times, and left the case for an hour; at the expiration of that time I kept them saturated for about a quarter of an hour with the gutta percha solution, taking care not to let them dry up during the time. I then left it for about twenty minutes to harden; on removing the rubber all sensation had disappeared. It was understood the patient should return if further trouble was experienced. It is now a month back and I have heard no more of the case.

It will be understood that I do not bring this forward as a new idea. It has been known and taken advantage of in practice by many of us for years past, but what I wish to show is that dryness is the best obtunder of pain in sensitive dentine, and that the efficacy of most of the agents now employed for this purpose is due to its power to bring about this result, and that the after troubles

experienced from thermal changes are due to the metallic filling having been packed into a damp bed, and that soft neural matter is in actual contact or in close proximity to the metal plug without any protection, or if any application was made the parietal surface of the cavity was pre-occupied with moisture and not in a condition to take it up, instead of having a dry, hard surface of devitalized bone, saturated with some non-conducting material insoluble in water, capable of resisting any reasonable percussion from the mallet, forming a natural cap over the pulp.

REVIEWS AND NOTICES OF BOOKS.

HARRIS'S PRINCIPLES AND PRACTICE OF DENTISTRY: including Anatomy, Physiology, [Pathology, Therapeutics, Dental Surgery, and Mechanism. Revised and Edited by F. J. S. GORGAS, A.M., M.D., D.D.S., Professor of the Principles of Dental Science, Dental Surgery, and Dental Mechanism in the University of Maryland. Eleventh Edition, with 750 Illustrations. J. & A. Churchill, 11, New Burlington Street.

AN American work, "Garretson's Oral Surgery," of a character similar to that now before us, was reviewed in this Journal some few months back. We were obliged to speak, on the whole, in condemnatory terms of that book, and on similar grounds, which we shall at once proceed to state, we must emphatically declare it as our opinion that this book also cannot be recommended to the English student or practitioner. If superior works did not exist the case might be different, but with well-known excellent British Manuals to hand the student has nothing to gain, probably something to lose, by wading through this, in more senses than one, exceedingly heavy volume. Treatises equally faulty have been, we know, issued from time to time from the British press, but we are certain no work having faults as glaring as those contained in that before us could, in this country, appear in an *eleventh edition*, with all its principal imperfections unamended. The editor states in his preface that this work has been the principal text-book in all (American) dental schools since the year 1841. If this be so (and we have no reason to doubt the statement), some facts which hitherto seemed difficult to explain may, perhaps, now be accounted for. We willingly concede that the system of education carried out at the American schools does succeed in turning out from among their students a large proportion of expert practitioners con-

summarily accomplished in the handicraft of dentistry ; and we will allow that the art of dentistry makes greater progress in the United States than in any other country, but we must maintain that in dental literature and science, America has produced little or nothing of value. We have said that a book of this kind, with its glaring faults unamended, could not in this country possibly reach an eleventh edition. The medical and dental press, on this side of the Atlantic, is sufficiently powerful to make itself heard, and it is impossible that success should attend the venture, if editors were to persist in re-issuing a work in face of the condemnation which its inexcusable faults would surely call forth. Of these faults two alone are enough to destroy any value the work might otherwise possess—its literary character is below the proper level, the style being obscure and turgid ; its science is often not up to date, sometimes obsolete, frequently inaccurate. The only portion of the work to which any value attaches is that devoted to the description of operative and mechanical processes, but this portion to a large extent does not rise above the level of a *catalogue raisonné*—a merely bald account of apparatus and its uses.

The book fails for another reason. It is impossible to adequately discuss the subjects taken up within the limits of a single volume. The book is already too big, containing close upon 1000 pages, but were it twice as bulky it would not be large enough to hold an account full enough to be lucid of the subjects to teach which an attempt is made.

It is certainly desirable in a work of the kind to give such an account of the development, anatomy, and physiology of the teeth as shall render clear the pathological and surgical problems discussed. To understand these problems the student must be first grounded in the general principles of anatomy and physiology. It is better he should learn anatomy and physiology from special works, and he cannot grasp any real knowledge of the former without dissection. It is difficult to know what considerations have influenced the editor in his selection of anatomical and physiological sections in this work. It is hard to see why the student should be called upon to master, at the outset, a knowledge of the "Development of the Cell Doctrine," rather than, for instance, the circulation of the blood—one being quite as necessary as the other to a comprehension of the problems discussed ; ten pages are, however, devoted to the subject named. These pages, which

may be taken as a sample of similar sections making up much of the book, are a mere jumble of heterogeneous excerpts from authors dating from Malpighi, 1679, to Dr. Lionel Beale, to whose doctrines the author gives unqualified adherence. One sentence must suffice to illustrate our statement as to the literary weakness of the book, which is exemplified in this section as in every other:—

“Situating in the centre of the elementary part, all food must pass through the formed material to reach the germinal matter ; hence the growth of the cell will be more or less rapid, other things being equal, according to the thickness of the formed material, the most superficial and oldest part of the cell.”

The author probably means here that the germinal matter is in the centre of the elementary part, but his liking for fine writing leads him to transpose a simple statement and render the whole sentence incomprehensible.

Many more pages are taken up with the anatomy of the jaws and neighbouring parts. An attempt is made to describe the physiology of development of bone in general, besides that of the jaws in particular. This being thought necessary, there seems no reason for the omission of the physiology of muscular and nervous tissue, a knowledge of that being equally necessary to the student.

In a work of this kind, professing to be complete and exhaustive, one would at least expect to find the section on the etiology and pathology of caries—the most important of dental diseases—full and clear. Here is the author's definition of the disease:—

“Caries of a tooth is the chemical decomposition of the earthy salts of the affected part, *sometimes, but not always, accompanied by disorganisation of the animal framework of this portion of the organ.* There is no affection to which these organs are liable more frequent in its occurrence, or fatal in its tendency, than this. It is often so insidious in its attacks, and rapid in its progress, that every tooth in the mouth is involved in irreparable ruin before even its existence is suspected. Its presence is usually first indicated by an opaque or dark spot on the enamel ; and, if this be removed, the subjacent dentine will exhibit a black, dark brown, or whitish appearance. It usually commences on the outer surface of the dentine of the crown, beneath the enamel, at some point *where it is imperfect*, or has been fractured or otherwise injured ; from thence it proceeds toward the centre of the tooth, increasing in circumference until it reaches the pulp cavity.”

The italicised passage of the first paragraph is, of course, incorrect and misleading, and the composition of the last sentence is

so faulty as to convey a meaning, if construed grammatically, different from what can be intended. A little further on this passage occurs:—

“The dentinal tubuli become less distinct near the margin of the carious structure than is the case in the perfectly normal tissue in proximity with the pulp chamber, and, according to Mr. John Tomes, has a zone-like form (the zone of Tomes), which he regards as a consolidation of the dentinal tubuli, an effort on the part of nature to place a line of demarcation between the healthy and carious structure.”

How such an egregious error as this could appear is difficult to conceive, unless on the hypothesis that the editor has not mastered the knowledge indispensable to his task. Messrs. Tomes, after examining all the phenomena alleged by earlier investigators to be due to vital reaction in the tissues, distinctly state that all these phenomena, including the zone, occur in caries of dead teeth retained in the mouth as artificial substitutes, and this fact has been demonstrated by many observers, including Wedl and Messrs. Underwood and Milles.

The editor here, as in many sections of the work, makes no attempt to write for himself a coherent account of the subject, but prefers to make up a chapter of selections from other writers. These selections, when not incorrectly quoted as in the case of Messrs. Tomes, and when not the incomprehensible lucubrations of pseudo-scientists, are often contradictory, so that the student in the end must remain hopelessly perplexed as to the interpretation rightly to be placed on the whole. Here is a fair sample of the style of sham scientific composition which makes up much of this book. The editor is quoting Dr. George Watt.

“Oxygen and nitrogen uniting in the mouth, in whatever proportions, *nitric acid must be the ultimate result*, as air and moisture, the only agents necessary in the transformation, are here always present. Mucus and particles of nitrogenous food lodged about the teeth undergo decomposition, and yield nitrogen to the oxygen of the atmosphere, or of the fluids of the mouth. Organic nitrogenous bodies contain hydrogen and oxygen, as well as nitrogen; consequently by their decomposition these elements are all liberated. The mutual affinities of hydrogen and nitrogen take precedence, and the result is the formation of ammonia, NH_3 ; ammonia exposed to the action of oxygen is always decomposed; oxide of nitrogen is formed, and nitric acid is the result. If buccal mucus as well as particles of nitrogenous food remain around, upon, and between the teeth, till decom-

position is effected, the white variety of caries is produced. Nitric acid is also sometimes formed in the mouth by the agency of galvanic action, which may be generated by two metals placed in the mouth in close proximity to each other, and the fluids of the mouth acting on one of them. And if they are so situated that the mucous membrane forms a connecting conductor, by being in contact with both, a current may be established sufficient to decompose any of the binary compounds contained in these fluids. The liberated nitrogen, hydrogen and oxygen, will form ammonia, and then nitric acid. But galvanic action in the mouth is more likely to develop hydrochloric than nitric acid."

A whole series of compounds may be formed by nitrogen and oxygen uniting in various proportions, and one would like to be told why these elements, uniting *in whatever proportions, must* in the mouth form nitric acid. The editor does not condescend to enlighten the reader; but, in truth, this passage cannot be seriously criticised, it is from beginning to end ludicrous and only fit for ridicule.

After quotations from several more or less well-known writers, the section "Causes of Dental Caries" is closed by the following remarkable passage. An editor who can allow a vast amount of stuff of this kind to find a place in a serious work, has surely demonstrated amply his unfitness for his office and the untrustworthy character of the book. 'The italics are ours.

"What is known as the 'septic theory,' is explained as follows by Dr. C. S. Stockwell: 'We will suppose an absolutely perfect tooth, the enamel absolutely intact, and no defects whatever. The enamel in such a case forms a perfect protection against the micro-organisms. There are many places about the teeth, however, where food collects and remains undisturbed. Now the organisms of fermentation operate upon the food and saliva, and the result is an acid. This acid may erode the enamel in time, so that a portion of the organic tissue of the tooth becomes exposed; organisms may then act directly upon the fibrils or organic tissues; *by absorbing the protoplasm they weaken its vitality or resisting force, disturb nutrition, set up inflammatory action, and the result is stasis and death of the organic tissue; after which the putrefactive and fermentative stage comes in, which disposes of both the organic and inorganic portions of the tooth.* We, then, *first* have a *killing* of a portion of the organic tissue as a result of the action of organisms—a disease. Secondly, the disposal of the organic and inorganic by putrefactive and fermentative processes—caries.'"

If a vast quantity of similar rubbish were not to be found throughout the book, and if this were not an edition eleven times

revised, one might excuse as an editorial oversight the appearance of a passage like this.

One more illustration of the worthlessness of the strictly scientific portions of this work, and we shall have amply justified the strong terms in which we have felt called upon to condemn it. A chapter is devoted to the subject of "Atrophy of the Teeth." The educated reader needs not to be told that atrophy of the teeth is on anatomical and physiological grounds an impossibility, and the use of such a term an absurdity. The term really no longer appears in modern dental terminology, being confined to obsolete authors who wrote before the anatomy of the teeth had been demonstrated. Although the author adheres to the term he, himself, seems to somewhat doubt its applicability and proceeds at once to state that he means by the term atrophy something quite different. Why, then, we must ask, retain the term and cause confusion. Here are the editor's words:—

"The strict applicability of the term *atrophy* may, perhaps, be considered as somewhat questionable, as the two principal varieties of the affection consist in a congenital defect in some portion of the enamel of two or more teeth, rather than in the wasting, for want of nourishment, of any of the dental tissues. This term would seem to be rendered still more inappropriate by the fact that neither of the varieties to which we have referred occurs subsequently to the formation of the enamel. But as the congenital form of the disease is evidently the result of altered function in a portion of one or more of the formative organs—if not of absolute degeneration, from *vicious (sic)* nutrition—we are disposed to regard the term as the most applicable of any that can be applied to it."

This is also a fair specimen of the editor's general style. To make pathological problems, or any other scientific problems plain, the first essential is either to use terms which are universally accepted and understood, or to define all new terms introduced. Criticising from this point of view, and before any useful opinion could be pronounced upon the author's views regarding atrophy of the teeth, one would require to know the sense in which the words "altered function," "formative organs," "absolute degeneration," and "vicious nutrition," are to be interpreted. If by the "formative organs," as we may guess, the enamel and dentinal pulps are meant, then we would need to be told what is the *function* of these organs and how can it be altered, and we must have clearly explained how their nutrition becomes vicious, and what is vicious nutrition in contra-distinction to normal nutrition. Writing

of this kind is surely useless to the educated practitioner and hopelessly bewildering to the student, and hence we repeat we consider this book not a desirable acquisition for one class or the other. Its faults are so radical and universal that no amount of revising can ever make it a work of standard authority.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odontological Society of Great Britain.

At the ordinary monthly meeting of the Society held on the 13th ult., Mr. C. SPENCE BATE, F.R.S., President, in the chair, Mr. Weiss, the Librarian, announced the purchase of a collection of German works on dentistry, some of which were very scarce, and all of them valuable additions to the Society's library.

The Curator (Mr. Hutchinson) announced several donations to the Museum, including a pair of very curious old forceps from Messrs. Ash, and a complete set of the instruments used in the application of Hammond's splint, from Mr. Newland Pedley.

Mr. NEWLAND PEDLEY mentioned a case of surgical section of the lower jaw which he had recently been called upon to treat at Guy's Hospital. The case was very similar to one he had brought under the notice of the Society a few months ago, viz., epithelioma of the floor of the mouth, but on this occasion Mr. Clement Lucas divided the bone by two oblique cuts of the saw, meeting at an angle, instead of by a straight vertical section. This greatly facilitated the subsequent treatment, and although there were no teeth available behind the bicuspid, Mr. Pedley had no difficulty in fitting a modified Hammond's without the assistance of a model. The subsequent progress of the case was very satisfactory.

Mr. HENRI WEISS mentioned the case of a lady, aged 45, the eruption of whose left upper canine had been retarded. When at length it did endeavour to take up its proper position in the mouth, it was prevented by a denture she was wearing, and inflammation and suppuration of the investing dental membrane supervened. Mr. Weiss removed the tooth, and found deep excavations on its lingual aspect which were filled with an organized pulpy mass. He at first took it to be an ordinary case of caries, but ultimately concluded that it was due to absorption. The interest of the case lay in the evidence it brought to bear on the condition of unerupted teeth. He thought that the numerous dissections

which had been made disclosing the presence of well-formed but unerupted teeth, and, on the other hand, the occurrence of cases like the present, in which absorption took place only after the tooth had pierced the gum, went to strengthen the opinion that when once a tooth was developed, it was either erupted, or lay dormant, or gave rise to a dentigerous cyst.

Mr. DAVID HEPBURN exhibited the oral spoon invented by Mr. T. S. Carter, of Leeds, for preventing teeth or stumps from slipping into the larynx during operations under anæsthetics, an illustration and description of which appeared in the January number of this Journal.

Mr. J. BLAND SUTTON, F.R.C.S., then read a paper on "Injuries and Diseases of the Jaws in Animals." The transactions of societies and periodical literature, together with the interesting specimens to be found in museums, afforded abundant evidence that animals in their natural, wild state suffered from disease, often very severe and extensive, and that animals of all sorts and sizes were liable to be thus affected, whilst fossil morbid specimens afforded undeniable proof of the antiquity of disease.

Besides injuries and their results, he would say something on the subject of malformations, atrophy, hypertrophy, and morbid growths.

Deformities of the jaws were of serious import in regard to the life of the young animal, for if the jaws were not perfectly formed and symmetrical, difficulty was almost necessarily entailed in the all-important act of grasping the nipple of the mother. Absence of the upper jaw was a rare defect, but its occurrence was attested by some specimens in the museum of the Royal College of Surgeons, consisting of the heads of an eel, a carp, and of a foetal chick; it had also been met with in geese and ducks.

Variations in size occurred less frequently in the upper jaw than in the lower; cases of arrested growth were, however, occasionally met with, and had been reported as occurring in a lamb, a goat, and a foal. The deformity exhibited by the breed of dogs called King Charles' spaniels, in which, owing to stunted growth of the pre-maxillæ, the lower jaw projects a considerable distance beyond the upper,—was a remarkable example of a peculiarity of this sort perpetuated by descent. Horses were liable to have the pre-maxilla somewhat more projecting than usual, so as to cause the upper incisors to project unduly, and overhang the lower set. On account of the resemblance the de-

formity had to a parrot's bill, the name "parrot-mouth" had been given to it. In some cases it caused the animal considerable inconvenience and difficulty in nibbling grass.

Cleft palate was by far the most common malformation to which the jaws of animals were liable; it had been found in horses, calves, dogs, and other animals. Examples had also been recorded of birds whose upper mandible had been found cleft in twain.

Examples of the absence of the lower jaw in a pig, and in lambs, were to be found in the Museum of the Royal College of Surgeons, and cases occurring in lambs, pigs, and calves, had been recorded by various authors. Defective development of the lower jaw was more frequently met with. A narrowing of the lower jaw was occasionally met with in some animals, particularly the horse, as the result of which the inner half of the crowns of the upper molars and the outer half of the crowns of the lower alone came into contact. The consequence of this was that the teeth wore very unevenly, and the lateral grinding movement of the jaws was interfered with or prevented.

Amongst the most remarkable malformations to which the jaws were liable must be mentioned the attachment of imperfectly-formed or parasitic foetuses, usually in the form of a lobulated tumour, made up of bone, fat, skin, teeth, nervous tissue, lanugo, and foetal tissues—all jumbled into an irregular, conglomerated mass. Two examples of this condition, both occurring in calves, and in which the parasite was attached to the lower jaw, were recorded by Saint-Hilaire.

Veterinary literature contained some exceedingly interesting cases of fracture of the maxillæ in horses and dogs, in which treatment had been successfully carried out. The favourite method of adjusting these fractures seemed to be the plan of wiring, which was now so commonly used in fractured jaws occurring in man. Mr. Sutton related some of these cases reported in the *Veterinarian*.

He then went on to describe a very curious deformity of the jaw, met with in the cachelot, or sperm whale, which had been supposed to be the result of injury received in fighting, but which Mr. Sutton believed to be due to congenital malformation. The deformity consisted in the symphysis and anterior half of the body of the bone being twisted nearly at right-angles to the ordinary direction. It did not seem to cause the animal much incon-

venience, for those thus deformed were in as good condition as others with normal jaws. No less than seven examples of these curiously twisted jaws had been recorded.

Alveolar abscess was a very fertile source of trouble to animals, causing not only extensive injury to the maxillæ, but even the death of the animal, as he had pointed out in previous papers.

Pyorrhœa alveolaris was another local disease affecting the jaws, to which some animals were liable. Mr. Sutton showed the skull of a monkey which had suffered from this disease; the alveolar margins of the jaws were absorbed, and the roots of the teeth exposed for the greater part of their length. The animal had died of septic pneumonia, caused by inspiration into the bronchi of the purulent discharge.

Hyperostosis was a curious disease, occasionally met with both in man and animals, in which the bones of the skull, including the jaws, were greatly thickened, the bones being at the same time soft and porous. Mr. Sutton showed the skull of a sea-lion which had been afflicted with this disease, and said he had also met with it in monkeys.

Morbid growths in connection with the jaws of animals were exceedingly rare.

Dentigerous cysts had been met with in the horse, sheep, pig, and goat, but they were very uncommon. Exostoses were occasionally met with on the jaws of animals. A good many such cases were recorded in horses; in one of these the growth when removed weighed twenty-one ounces. Cases of enchondroma and sarcoma of the jaws were also recorded as having occurred in horses.

Actinomycosis was, strictly speaking, a general disease, but as the jaw was so often the seat of its manifestation, it might be mentioned in this connection. Most of the tumours which had been described as sarcomata and osteo-sarcomata were really due to this disease, which was very common in horses and cattle. It was caused by the presence of a fungus which gained entrance to the tissues through wounds or abrasions, and which then set up inflammation and suppuration. The fungus was found in these inflammatory nodules in the form of yellow globular tufts, but its botanical position had not been determined, and nothing was known respecting the etiology of the disease.

The PRESIDENT said he remembered reading some years ago in Gordon Cumming's book on Lion-Hunting in South Africa an

incident which went to confirm Mr. Sutton's statement that wild animals did not escape disease. The author related how he shot a lion which proved to be in very poor condition, and found that it was suffering from an abscess at the root of one of the canines. He noticed that Mr. Sutton in the course of his paper spoke of Riggs' disease as being due to the irritation of tartar deposited on the teeth. Now his experience was that cases of Riggs' disease were met with in which there was no deposit of tartar, and that on the other hand there might be a large quantity of tartar present and yet no Riggs' disease. He had certainly met with cases in which extensive wasting of the alveoli had taken place, and the teeth had fallen out, but in which there was no tartar to be seen. He should be glad to hear the opinion of others on this point.

Mr. STORER BENNETT said he had been much interested in what Mr. Sutton had said about the "cartilage islands" and their connection with the growth of exostoses. It was undoubtedly a most remarkable fact that the parts of the jaw which were most liable to be the seat of exostoses, viz., the symphysis and the angle, should be those which remained united by cartilage until a comparatively late period, and that the same held good with regard to the temporal bone. He was not quite clear whether Mr. Sutton said he had actually observed the transition from soft tissue to bone, or whether he had only inferred it. For, unless it had been actually seen, he was very doubtful whether there was such a transformation as would convert a dentigerous cyst into an odontome.

Mr. HENRI WEISS said that as the thickening of the bones of the skull, to which Mr. Sutton had referred as osteoporosis, was not a common disease, it might be of interest to mention that he had met with a case at the National Dental Hospital. The patient was a girl of from eighteen to twenty years of age. She had noticed that her teeth were separating for some few months past; previously they had been close together, now they were nearly an eighth of an inch apart. There was bony thickening round the teeth, the supra-orbital and temporal ridges were markedly enlarged, and there was also enlargement of the bone about the symphysis and angle of the lower jaw. The patient only applied to know if anything could be done to arrest the changes that were going on, and was not seen again.

Mr. CANTON asked whether Mr. Sutton had found exostoses

on the lower jaw of animals most common on the outer or inner plate? He had mentioned the neighbourhood of the symphysis and of the angle as the most common seats of exostoses of this bone, and had accounted for this by the fact that remnants of foetal cartilage were apt to persist in these situations. He (Mr. Canton) had lately had a case in which a considerable exostosis had formed on the inner plate in the bicuspid region, anterior to the angle. How did Mr. Sutton explain the appearance of an exostosis in this situation?

Mr. D. HEPBURN said he could fully confirm Mr. Sutton's statement as to the frequency with which exostoses were met with in the neighbourhood of the symphysis; they were really very common, though as they did not cause the patient any pain or trouble, and nothing could be done in the way of treatment, it was not often that the practitioner made any note of their existence.

He thought that tartar was more often the result than the cause of disease. Whenever a tooth could not be used freely it was apt to become the seat of a deposit of tartar. He had noticed this particularly in the case of a tame monkey which used to suffer occasionally from inflammation of the gums. The teeth got loose and tender, the animal could not bite freely, and a deposit of tartar quickly took place. But as soon as the inflammation subsided, the tartar, which had not had time to get very hard, was soon removed by the friction of mastication.

Mr. R. H. WOODHOUSE said he had been surprised to hear Mr. Sutton's statements as to the frequency of disease of the teeth and jaws in wild animals; he thought, however, that it was going rather far to say that the opinion that disease of the jaws was due to civilisation was all nonsense. Did not Mr. Sutton think that animals kept in captivity suffered more from these diseases than they did in their natural state? He thought that, as regards man, at all events, it had been conclusively proved that the quality of the teeth was immensely influenced by the general conditions of life.

Mr. HUTCHINSON said reference had been made to the fact that teeth might be lost from Riggs' disease without there being any appearance of tartar. He thought that this might be partly explained by a fact which was mentioned by Mr. Tomes in his book, but which was, he believed, generally overlooked, viz., that the more highly calcified a tooth was, the less hold it had on the alveolus. Mr. Tomes mentioned this as accounting for the loss of

sound teeth in elderly subjects, and it might also explain the fact that some people lost their teeth from apparently much slighter causes than others. The loss of the teeth in animals might also be sometimes thus accounted for.

Mr. F. N. PEDLEY said the odontome composed of cementum shown by Mr. Sutton did not resemble those described in the writings of Mr. Tomes, to which Mr. Sutton had alluded. Odontomes connected with human teeth were mere hypertrophies of dental pulp which had undergone irregular calcification. Mr. Sutton's odontome, on the other hand, consisted of cementum, and must either be regarded as an exostosis formed from the peridental membrane or as a true tumour of the tooth. Mr. Sutton had also alluded to a developing odontome in which no tooth was present. This resembled the class *odontome embryoplastique* of Broca ; but there was some doubt in the minds of many surgeons whether these fibro-cellular masses were odontomes at all, or whether they were analogous to the encysted fibroids found in the uterus and elsewhere.

Mr. Sutton's explanation of erosion as being due to developmental defects was scarcely consistent with the fact that it so frequently occurred in strong well-formed teeth ; nor would it account for the formation of smooth polished surfaces in erosion and of cavities in caries.

Mr. TURNER said he felt bound to protest on behalf of civilization. He agreed with Mr. Sutton that civilization was blamed for a great deal that could not justly be laid to its charge ; in fact, most of the troubles for which it was said to be answerable should rather be attributed to the want of it. Perfect civilization was the highest development of man, mentally, morally, and physically, and it should not be blamed for all the evils brought about by the influences of fashion and habit. The majority of these evils, diseases of the teeth amongst them, were due rather to want of common sense than to civilization.

The PRESIDENT said he must now call upon the author of the paper for his reply. He should be glad to know if it had really been proved by observation that the cartilage islands did develop into exostoses, or whether this was only a matter of theory or inference.

Mr. SUTTON remarked that writing a paper was a simple matter compared with the task of briefly answering the long list of questions and criticisms which had been addressed to him. Careful

observations were daily confirming the fact which he had stated, viz., that all animals, both small and great, from the water-flea to the elephant, were liable to disease. The connection between tartar and Riggs' disease, whether it was a cause or result of the disease, was, he knew, a moot point ; but it was at all events interesting to find that animals suffered from a disease very similar to that which was met with in man, and known as pyorrhœa alveolaris.

With reference to the connection between "cartilage islands" and exostoses, it was of course impossible actually to demonstrate the fact in any given case, but at the same time the fact that these cartilage islands were so frequently found in certain situations, and that exostoses also occurred in the same situations, appeared to him quite sufficient proof of a connection between the two. Mr. Canton's exostosis on the inner side of the lower jaw no doubt owed its origin to a remnant of Meckel's cartilage, which occupied that situation during a portion of foetal life. His definition of a tumour was that it was a new formation having a structure different from the tissue in which it grew, and having a tendency to increase ; according to this, the mass of cementum surrounding the agouti's tooth was strictly a tumour.

He had great pleasure in offering for the acceptance of the Society the specimens which he had exhibited to illustrate his paper, with the exception of the skull of the sea-lion, which did not belong to him.

The PRESIDENT then proposed a vote of thanks to Mr. Sutton for his paper, and for his valuable donations to the Museum, and also to Mr. Pedley, Mr. Henri Weiss, and other contributors of specimens, &c., which was carried with much applause.

Dr. GEORGE FIELD showed, after the meeting, an electric dental engine and battery. The electric engine was an improvement on one which he showed some months ago, being lighter and more compact ; it weighed 10½oz. The battery was one supplied by Messrs. Coxeter and Nehmer, spoken of about six months ago, by Mr. Walter Coffin, at one of the Society's meetings. The carbons were 2 feet in length and 3 inches in diameter, giving a current of large quantity, and very high electro-motive force. One advantage of this form of battery was that it would do a very large amount of work without re-charging. Used on an average for five hours a day, it would work satisfactorily for six or seven weeks without re-charging, and if only occasionally used would go on

for three months without attention. That shown by Dr. Field consisted of twelve cells, and by means of a shunt either half could be used, or the whole number.

Dr. WALKER also sent for exhibition an 8-celled Leclanché battery, made by the India-rubber and Gutta-percha Company, of 106, Cannon Street. Each cell was lined with zinc plates, and contained six carbon blocks, surrounded by four agglomerate pillars. The arrangement of the cells and connections was such as to afford the greatest motive power at the least expense to the battery. This could be maintained at full power for 100 hours. When the current became weak, the carbon blocks and agglomerate pillars must be detached, brushed with a hard brush and placed in fresh solution, when the power would be completely regained.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Biological Studies on the Fungi of the Human Mouth.*

BY PROF. W. D. MILLER, Berlin.

IN order to be able to determine upon the proper course to be taken in the attempt to remove or check the progress of any disease, it is necessary that our ideas of the cause and course of that affection be established upon the most certain, exact and scientific data which we are capable of attaining. Unfortunately for the dental profession, the attempt to furnish a scientific solution of the problems of dental caries has, until recently, been confined to a very few, and even now a majority of the investigators in dental pathology are content to restrict their observations to the clinical aspect of the question, a course which could never produce a satisfactory solution; while others even openly advocate a speculative course, and do not hesitate to ascribe to every new factor discovered in nature, a role in the production of caries of the teeth.

* German mycologists use the term "Pilz" indiscriminately to designate either Schizomycetes, Blastomycetes, Hyphomycetes or Myxomycetes. When it is desirable to refer to any one of these groups in particular, they use the prefixes Spalt, Spross, Schimmel, or Faden, and Schleim, giving Spaltpilz, Sprosspilz, Schimmel—or Fadenpilz and Schleimpilz. Following their example, I have in previous papers used the term fungus for all of the four groups of mycetes mentioned above, and shall also use the term in this paper, in which only Schizomycetes are treated of.

Consequently we have had presented to us in turn, worms, acids, inflammation, electricity, infusoria, bacteria, putrefaction, toxic agents, etc., etc., as causes or conditions of *caries dentium*, some of these theories containing truth and some a surprising amount of absurdity. In the last two or three years, however, a great advance has been made in the methods of study, and a number of important points have been firmly established.

1. The observation of Leber and Rottenstein that micro-organisms are constantly present in decaying dentine, has been confirmed. (Wedl, Milles, Underwood, Miller.)

2. The softening of dentine in caries has been shown to be chemically identical with that produced by certain weak organic acids. (Miller, Jeserich, Bennefeld.)

3. It has been established that various organisms found in the human mouth produce the decalcifying acid, by first converting non fermentable sugars into fermentable varieties, and secondly, by splitting fermentable sugars into lactic acid. (Miller, Hueppe.)

4. The same organisms have been found capable of dissolving decalcified dentine, while they have no apparent effect, even after two or three years, on sound dentine. (Miller.)

5. Caries of dentine, chemically and morphologically identical with natural caries, has been produced outside of the mouth. (Miller.)

6. It has been furthermore shown that certain of the organisms of the human mouth are capable of developing under exclusion of air, thus making it possible for them to propagate within the substance of the dentine. (Miller, Hueppe.)

I propose to describe, in this and the following article, a series of experiments made for the purpose of obtaining more definite information respecting the number and morphology of the fungi of the human mouth, and their physiology, as far as is necessary to an understanding of the part which they may perform in the production of caries of human teeth.

At the meeting of the American Dental Association at Saratoga, a number of tubes containing pure cultures of fungi were passed round; with regard to these a reporter remarked that "they were evidently beyond the information of the majority." It is not very flattering to American dentistry if its representative Association allows a question of so great importance to remain beyond its comprehension, nor is there any excuse for such a con-

dition of things now, so widespread have the methods of pure culture become. I rather incline to the opinion that the reporter misinterpreted the apathy of the members of the Society. I shall, at any rate, here describe in a few words the methods now universally employed in isolating any given fungus, and then, more in detail, give the means which I have used to ascertain the physiological characteristics of the different fungi when obtained in pure culture.

We will start with a solution densely impregnated with micro-organisms, and a number of tubes of culture gelatine, perfectly sterilized. The gelatine being melted, we add to the first tube one bead (on a loop of sterilized platinum wire) of the solution. This is called the *first dilution*. From this tube we add two or three beads to a second tube (*second dilution*), and from the second five or six beads to a third tube (*third dilution*.) The gelatine is then poured upon horizontally placed, sterilized, cold glass plates. It congeals in a few seconds, and the three plates are placed in a pile (on glass benches) in a moist cell. The plates are examined after twenty-four to thirty-six hours, under a magnifying power of one hundred diameters.

By this means the fungi are so separated that on the third plate there will generally not be more than two to ten; (on the second there may be one hundred or two hundred, while on the first, of course, there are very many more.) As each micro-organism develops, being fixed in the gelatine, we shall have at that point a pure culture of that particular kind. At another point we obtain a colony of a second kind, and so on. In general, colonies of different fungi may be distinguished with the greater ease by their microscopic appearance. With a sterilized platinum wire, bent at right angles at the end, we now pick up a number of the colonies of each kind, under the microscope (one hundred diameters), and transfer them directly to tubes of culture gelatine, only one colony to each tube. We have then (except in case of a possible accidental air-infection) pure cultures. Some experience is necessary to enable one to pick up the colonies under the microscope. Beginners should not attempt it with plates where more than one colony is in the field at once.

The method described in this journal (page 340 1884) may also sometimes be used to great advantage. For fungi which do not grow on gelatine, Agar-Agar, or congealed blood serum, should be used. The former, one to one and a half per cent., has a higher

melting point than gelatine, ten per cent. and remains solid at the temperature of the human blood. When it is used for plate-cultures, it must be melted in hot water, and the infection made at a temperature of about 105° F. Below this temperature it becomes solid, and cannot be poured; above it the germs would be liable to suffer. In other respects the Agar-Agar media are treated as the gelatine. Congealed blood serum cannot, of course, be poured upon plates. It is prepared in test tubes so inclined as to give the greatest possible surface, and a minimum quantity of the substance containing the fungus or fungi spread over the surface.

Having obtained a pure culture of any fungus, the points to be determined regarding it are the following:

1. Its morphology; (bacillus, spirillum, micrococcus.)
2. Is it moveable? does it produce spores?
3. What are its growth-characteristics on various media, microscopically and to the naked eye?
4. What are its relations to oxygen?
5. Does it produce fermentation? If so, what fermentation, under what conditions, and with or without development of gas?
6. Does it cause putrefaction?
7. Does it have a diastatic, inverting, or peptonizing action?
8. Has it a pathogenic character?
9. Does it produce coloring matter?
10. What is its susceptibility to the action of the various anti-septics?

The first and second of these questions are, of course, determined by the microscope alone; the third, by the microscope and the naked eye combined; the fourth by the methods described in this journal, page 62, 1884, or by placing a thin strip of mica upon one half of the culture-plate before the gelatine solidifies; the mica then adapts itself closely to the surface of the gelatine, excluding the air, and if the fungus requires oxygen for its development the colonies beneath the mica either will not develop at all, or they will be very small compared with those on the other half of the plate, their growth ceasing as soon as the oxygen in the gelatine has been consumed. (Koch.) The fifth point is answered by infecting fermentable solutions with the fungus in question, placing it under various conditions of temperature, etc., and determining the products of fermentation (if any); the sixth by analogous methods; the seventh question is determined by the action of the fungi upon starch, cane sugar, and albumen, (boiled white of egg);

the eighth by experiments on animals ; the ninth by the appearance or non-appearance of colour in the vegetation itself, or in the surrounding medium ; the tenth by experiments that will readily suggest themselves.

Other points to be investigated will be mentioned futher on. Boiled potato is a medium of great value in the determination of Schizomycetes. No medium, however, requires greater care in preparation and after treatment than this, in order to obtain satisfactory results. Any sound potato *which does not become mealy or crack open on boiling*, will do for the purpose ; it is first thoroughly washed and brushed, and all defective spots and deep eyes being removed, it is placed for one hour in a corrosive sublimate solution, five to one thousand, then in the steam sterilizer for one-half to one hour. In the meantime the moist cell is sterilized, and the bottom lined with filter paper wet with sublimate solution, five to one thousand. The potatoes are, while hot, removed from the sterilizer with sterilized forceps, cut into halves with a cold sterilized knife, and placed directly upon the sublimate paper (the cut surface up), and the cell closed. Potato sections prepared in this way should remain unchanged indefinitely, When the potato has become cool, the cover of the cell is carefully removed, and the fungus which is to be cultivated is spread upon a space about as large as a dime, in the centre of the section. Fungi which, morphologically as well as in their reaction upon 'gelatine, Agar-Agar, and blood serum, show no appreciable differences, may sometimes be easily distinguished by aid of the potato culture. The potato can seldom be used to separate fungi, (*i.e.* to prepare pure culture). It is chiefly used as a reagent in distinguishing between fungi already in pure culture. For example, all comma bacilli yet discovered grow on potato, except the one found by Dencke in old cheese, which does not develop at all on potato, and is thereby at once distinguished as an entirely different fungus.

Eggs may often be used to great advantage. They are prepared as follows. The *fresh* egg is placed in sublimate, five to one thousand, for ten minutes, then in the steam sterilizer for one hour. The cell for eggs is prepared as for potatoes, except that a sterilized glass plate, resting on a glass bench, is placed in the bottom to support the egg sections. As the eggs must be handled with the fingers, the hands must be thoroughly washed, then soaked in sublimate, five to one thousand, and then washed again in *alcohol absolutus*, to remove the sublimate. The eggs are

shelled while still hot, and cut into two, three, or four sections. They are vaccinated in points upon the white ; the yellow is not so well adapted to culture experiments, since it cannot be cut with a smooth surface.

I always keep on hand sections of potato and egg, also tubes of gelatine, Agar-Agar, and blood serum, and when in my practice particularly good material, or anything uncommon presents itself, a portion of it is at once transferred to these different culture media, so that it is pretty sure to develop in one of them, at least. For example, I have several times met with a fungus in the human mouth which produces a yellowish coloring matter, and which absolutely refuses to grow on anything which I have tried, except potato.—*Independent Practitioner*.

(*To be continued.*)

The Origin of Exostoses of the Jaws.*

BY J. BLAND SUTTON, F.R.C.S.,

LECTURER ON COMPARATIVE ANATOMY, MIDDLESEX HOSPITAL MEDICAL SCHOOL.

THE occurrence of cartilage tumours and exostoses in connection with the bones, and especially with the maxillæ, are facts of very considerable interest. It seems that the jaws are favourite seats of exostoses in animals as in man. There are several cases recorded in horses. In one case the tumour weighed twenty-one ounces, and grew by a narrow peduncle from the septum nasi, but the mass of the growth was lodged in the antrum. In another well-recorded case an exostosis growing from the premaxilla of a horse, displacing the incisor teeth, was safely removed from a three-year-old colt. It weighed five ounces. In both these cases the growth exhibited under the microscope the structure characteristic of true bone.

The embryological history of the face affords a very satisfactory explanation as to the probable origin of these tumours. In 1875 Virchow showed that in the bones, islands of cartilage which

* An extract from Mr. Sutton's paper on "Injuries and Diseases of the Jaws of Animals" read at the meeting of the Odontological Society on the 13th ult. The dry abstract which appears at p. 299 of this number gives but little idea of the interesting character of the original, and we publish this extract in the hope that it may induce those of our readers who have not already done so to read the paper itself as published in the April number of the Society's Transactions.—ED.

remain untransformed in the general ossifying process may later in life become the starting point for the formation of cartilage tumours. It may also be conceded that the "islands" may also be the starting point for osteomata, as these tumours are but a further development of cartilage; growing exostoses are always covered with a cap of cartilage.

The conception may easily be applied to the jaws. If at the tenth week of intra-uterine life the investing tissues of the face be carefully teased away, or better still if the parts be examined by a series of vertical sections carried through the skull and examined in detail with a lens, it will be observed that a pent-house shaped piece of cartilage passes from the trabecular region of the skull and terminates at the tip of the nose. This layer of cartilage is known as the fronto-nasal plate, and it is supported by the median ethmo-vomerine plate. As development proceeds, the nasal, palate, and superior maxillary bones develop in the perichondrium, and by their pressure cause atrophy of the underlying cartilage. The ethmo and inferior turbinals develop in the scroll-like pieces of cartilages. The only part of the fronto-nasal plate left in its original cartilaginous condition in the adult is that which forms the lateral and sesamoid cartilages of the nose. The vomer arises in the perichondrium of the ethmo-vomerine, and by its pressure causes the adjacent cartilage to disappear; bone is deposited in the upper portion to form the perpendicular plate of the ethmoid with the crista galli, whilst the extreme end maintains its original condition, and is recognised in the adult as the triangular cartilage of the nose. Two little plough-share-shaped pieces of cartilage are also retained on either side of this septum, immediately over the anterior palatine canals, to support the structure known as the "organ of Jacobson."

Seeing then that cartilage enters so largely into the formation of the face,—persists in places even throughout life,—we have not far to seek for "cartilage islands," which may germinate under favourable conditions into cartilaginous or osseous tumours.

In the lower jaw, that portion of the bone anterior to the mental foramen is developed in Meckel's cartilage. Patches of cartilage are also very frequent at the angle of the maxillæ.

It is a curious but significant fact, that of all parts of the jaw the symphysial region and the angle are by far the most frequent seats of enchondromata and osseous tumours.

ANNOTATIONS.

THE usual annual session of the General Medical Council commenced on the 12th inst., but, so far as we are aware at present, its proceedings on this occasion are not likely to present anything of special interest or importance to the dental profession.

THE attention of the Business Committee has been called by the President to the Poisons' Bill now before the House of Lords, a measure which has for its object the regulation of the sale and use of poisonous drugs and materials, and steps were at once taken to protect the privileges which qualified dentists have hitherto enjoyed as regards the use of such drugs for professional purposes.

THE letter from our Honorary Secretary which appears in this number will serve to remind our readers that our Annual General Meeting is again within measurable distance. It will be seen also from the notice we publish amongst the Association Intelligence that our energetic brethren of the Eastern Counties Branch have already commenced their preparations.

AT a business meeting of the University Union Society of Cambridge, held on the 4th inst., it was proposed by the Vice-President, Joshua T. Bell, Esq., and carried, "That the use of the Society's hall be granted to the British Dental Association on August 27th, 28th, and 29th, 1885, and that the Members of that Association be admitted during the same time to the privileges conferred on strangers by having their names inscribed in the Visitors' Book."

DURING the April sittings of the Board of Dental Examiners of the Royal College of Surgeons of Edinburgh, Messrs. Edward Percy Rose, of Leicester, David Thomson, of Edinburgh, and John Trude Fripp, of London, passed the first professional examination for the dental license; and Messrs. William Wilson, of

Edinburgh, James Leslie Fraser, of Inverness, James Johnstone, of Nottingham, Aitkin W. Cormack, of Edinburgh, Benjamin Douthwaite, of London, and Leonard Latham Wilde, of Winchester, passed their final examination, and were admitted L.D.S.Edin.

AT the examinations for the Dental License, held by the Faculty of Physicians and Surgeons of Glasgow on the 23rd and 25th ult., Messrs. Edward J. Hardern, of Birmingham, Fred Dale, of Sheffield, and W. B. Tolputt, of Sheffield, passed the first examination; and Messrs. Leonard Herbert, of West Kensington, and Fred J. McCulloch, of Glasgow, passed the final examination and were admitted L.D.S. Two candidates were remitted at the first, and one at the second examination.

AT the meeting of the Odontological Society of Great Britain, which will take place on the 1st proximo, the last of the present session, Mr. Charles Tomes will give the results of some experiments which he has carried out with amalgam fillings, and several interesting casual communications have been promised by Dr. St. George Elliott and others.

WE are glad to learn from the Fifth Annual Report, lately received, that the Dental Hospital of Exeter is flourishing and doing excellent work. The balance-sheet shows that £20 has been added to the reserve fund, leaving a small surplus in the treasurer's hands as well. 5,355 operations were performed during last year, of which 4,049 were extractions; 780 fillings were inserted, 48 of these being gold, and 526 cases of irregularity, &c., were treated. Altogether, the report is a very satisfactory one.

WE remarked a few months back on the appearance of the first number of the *The Austro-Hungarian Quarterly Journal of Dentistry*. The second number, lately received, is also a good one. It contains a paper entitled, "Comparative Observations concerning Caries Acuta, Caries Chronica, and Necrosis Eboris," in which Dr. Joseph Arkovy gives the results of a series of investigations into this subject, which he has lately carried out with his usual care and thoroughness.

ASSISTED in the microscopical work by Dr. G. Matrai, Dr. Arkovy has re-investigated the minute appearances of caries. He confirms the statements made by Messrs. Underwood and Milles in 1881 as to the presence of micro-organisms, the enlargement of the tubes, and also as to the isolation of the bacillus from the micrococcus; he has also observed the diplococcus of Dr. Miller, of Berlin. Dr. Arkovy thinks it advisable to subdivide caries into three stages of acuteness, between which he draws very sharp distinctions, which may be thought by some to unnecessarily cumber an already overlaid question. When differences are only in degree, it is dangerous to infer that they are so also in kind, and the multiplying of names and boundary lines within the same territory may be a doubtful advantage. The methods of preparation, section-cutting, and staining referred to are those generally in use, and call for no special comment.

WE note in the April number of the *Revue Odontologique*, a very good and amusing paper by Dr. Mordaunt Stevens, on "Popular Errors and Prejudices connected with Dentistry," read before the French Odontological Society on the 21st ult. It will not, we fear, be improved by translation, but if space permits we hope to be able to place it before our readers either in full or in abstract.

WE were pleased to see in the *Lancet* of April 25th, a very fair report of the meeting of the Midland Branch at Nottingham, with abstract of the President's address, &c. The statement that "the membership of the *Association* is eighty-eight, which was far below what they wished to see," is, however, not quite correct. The membership of the Association is certainly still far below what it ought to be, but it contains at least five hundred more members than the *Lancet* gives it credit for. The mistake of writing "Association" for "Branch" was of course a *lapsus calami*.

The Medical Times of April 18th, contains a translation of a clinical lecture by Professor Bilroth on the case of gasterotomy which we briefly referred to last month, and the fuller particulars given therein rather tend to confirm the opinion we expressed, that under the circumstances the treatment was somewhat "heroic." The operation of gasterotomy for the removal of a

foreign body from the stomach would seem to be called for only when there are signs that the body is causing local irritation, as evidenced by acute pain and vomiting, especially if the ejected matter be tinged with blood. But in this case it is expressly stated that there was but little pain, and no mention is made of vomiting; whilst from the age of the patient (nineteen) it is probable that the plate was a small one. The girl appears to have made a good recovery, and the operation is, no doubt, a triumph of modern antiseptic surgery; still we believe there are few English surgeons who would, under similar conditions, be disposed to follow the course adopted by the famous Viennese professor.

IN the February number of this Journal we referred to an interesting description of two specimens of pre-historic dentistry, published by Dr. Van Marter, of Rome, in the *Independent Practitioner*. One of these was Etruscan, probably dating from about 600 B.C., and the other somewhat later. With reference to this, Dr. Waite of Liverpool, writes to the same journal stating that there are in the "Brown Museum," at Liverpool, two specimens similar to those figured in the January number of the *Independent Practitioner*. The following is Dr. Waite's description:—

"One consists of a gold band enclosing the right upper canine and left central, with spaces and rivets for right lateral and central. The artificial crowns are missing, but the two natural teeth are in good preservation.

"The other is a similar gold band enclosing two laterals, in order to carry two artificial centrals. The latter are evidently carved out of some hard ivory, and make a fair substitute. They are in good condition, with the gold rivet passing right through, but the natural teeth to which this case was attached are wanting.

"These precisely resemble the specimens illustrating Dr. Van Marter's paper, and do not need further illustration.

"Judging from the fact that these gold bands, which are about an eighth of an inch deep, must have passed up well on to the necks of the natural teeth, and also considering the depth of the artificial crowns, I am disposed to think these two cases were designed to replace teeth which had loosened and come away, rather than teeth which had decayed. It is difficult to conceive of these deep bands going up into place, if the gums and alveolar were in normal position.

"The specimens I have seen belong to a very celebrated collection

of antiquities made by Mr. Mayer, of this city, and presented by him to the museum in 1867. Beyond this I could learn nothing, except the fact that they are recorded to have been found in Etruscan graves."

WE take this opportunity of requesting those of our readers who may notice any omissions or inaccuracies in our list of Dental Appointments at the London hospitals to call our attention to them. We have reason to know that the list is of some use both to practitioners who wish to send patients to these institutions and to country practitioners who are visiting the metropolis, and who are anxious to come across old friends or fellow-students and to pick up a few practical hints at the same time. But the value of the list depends upon its accuracy, and this we cannot hope to maintain except with the co-operation of those whose names appear in it.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

The Liverpool Dental Hospital.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

DEAR SIR,—Be good enough to allow me a little space in your columns to ventilate a grievance, that, it seems to me, touches very nearly all the respectable members of our profession.

I was one of the Honorary Dental Surgeons at the Liverpool Dental Hospital until Easter; but about that time circumstances arose to cause myself and my colleagues to tender our resignations, which were accepted.

The cause of the difference was as follows:—Honorary Assistant Dental Surgeons were advertised for. Four men applied. Out of these four the Medical Board accepted three, and refused one, as they did not consider he carried on his practice in accordance with modern dental ethics. In spite of this the Committee elected the said individual, though we—the Medical Board—were unanimous in our vote against him. The Committee simply passed the resolution and carried it through, outnumbering us, and so getting a majority.

We, feeling our opinion slighted, tendered our resignations in a letter which we all signed. We were asked to meet the chairman to discuss the matter quietly; and in this discussion maintained, that it was the *principle* of the thing we held out for; and said we could not consent to take office again, unless the Committee decided to take

our dictum as absolute on all matters that related solely to the management.

In a few days we received letters saying that the Committee could not consent to such proposals, accepting our resignations. What are we to do? Are we to hold out firmly or compromise the matter? I hope that by ventilating this grievance freely some of your readers may be able to suggest a satisfactory way out of the difficulty. I may say that all the newly elected assistants have followed our lead, as has also one of the stipendiaries.

Believe me, yours faithfully,

ONE OF THE LATE STAFF.

Liverpool, April 24th, 1885.

The Annual General Meeting.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

BRITISH DENTAL ASSOCIATION,
40, LEICESTER SQUARE, LONDON, W.C.

DEAR SIR,—I beg to remind the members of the Association that the date of our Annual Meeting is drawing near, and that I shall, therefore, be glad to receive an intimation from members who intend to read papers, stating the title of their communication, and if possible also the length of time likely to be occupied in its delivery.

I should also be glad to hear from gentlemen who are willing to favour us with demonstrations, in order that the Local Committee may be enabled to make the necessary arrangements as far in advance as possible.

I am, Sir, yours, &c.,

F. CANTON, *Hon. Sec. B.D.A.*

APPOINTMENT.

Mr. J. J. ANDREW, L.D.S.Eng., has been appointed Dental Surgeon to the Hospital for Sick Children, Queen Street, Belfast.

TO CORRESPONDENTS:—

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

ANSWERS TO CORRESPONDENTS.

L.D.S. EDIN. : Whilst fully sympathising with you under the circumstances referred to in your letter, we can only counsel patience and the maintenance of a dignified position. Much harm may be done by indiscrete words or acts.

E.G. CLAPHAM : The work is in progress, but we can give you no information as to when it may be expected to appear.

COMMUNICATIONS HAVE BEEN RECEIVED FROM :—

Messrs. Chas. Tomes, London ; C. Spence Bate, Plymouth ; the Secretary of the Royal College of Surgeons of Edinburgh ; W. H. Coffin, London ; E.G. ; H. B. Mason, Exeter ; J. S. Turner, London ; one of the Late Staff ; Henry Blandy, Nottingham ; W. A. Rhodes, Cambridge ; Dr. J. Smith, Edinburgh ; F. Canton, London ; R. F. H. King, Newark ; Dr. W. C. Barrett, Buffalo, U.S.A ; the Secretary of the Faculty of Physicians and Surgeons of Glasgow ; L.D.S. Edin. ; Dr. Marshall, Nottingham ; W. B. Macleod, Edinburgh ; A. Underwood, London ; &c.

BOOKS AND PAPERS RECEIVED :—

Dental Advertiser ; Dental Cosmos ; Independent Practitioner ; Dental Register ; Ohio State Journal of Dental Science ; Archives of Dentistry ; Revue Odontologique de France ; Progrès Dentaire ; L'Odontologie ; Correspondenz Blatt für Zahnärzte ; Deutsche Monatschrift für Zahnheilkunde ; Subovrachebny Vestnick ; Skandinavisk Tidsskrift for Tandlæger ; Lancet ; British Medical Journal ; Medical Times ; Medical Press, London Medical Record ; Birmingham Medical Review ; Chemist and Druggist ; Transactions of the Odontological Society of Great Britain ; Nature, April 16th & 23rd ; Nottingham Journal, April 18th ; &c., &c.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &c.

HOSPITALS.	DENTAL SURGEONS.	ASSIST. DENTAL SURGEONS.	DAY AND HOUR OF ATTENDANCE.	ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewbank ; Mr. Paterson ...	Mr. Mackrell ; Mr. Ackery ...	Tuesday and Friday, 9 a.m. ...	Mr. Mills.
Charing Cross ...	Mr. Fairbank ...	... ..	Monday, Wednesday & Friday, 9 a.m.
St. George's ...	Mr. Winterbottom ...	... ..	Tuesday, 9 a.m....
Guy's ...	Mr. Henry Moon ...	... ..	Tuesday and Thursday, 12.30 noon ...
King's College ...	Mr. S. H. Cartwright ...	... ..	Tuesday and Friday, 10 a.m. ...
The London ...	Mr. Ashley Barrett ...	... ..	Tuesday, 9 a.m....
St. Mary's ...	Mr. Howard Hayward...	... ..	Wednesday and Saturday, 9.30 a.m....
Middlesex ...	Mr. Bennett ...	... ..	—
St. Thomas's ...	Mr. Ranger ...	Mr. C. Rogers ...	Tuesday,	
University College...	Mr. Hutchinson...	Mr. Chas. Truman ...	Wednesday, 9.30 a.m....	
Westminster ...	Dr. Walker	Wednesday and Saturday, 9.15 a.m....	Mr. Bailey. Mr. Bird. Mr. Mills. Mr. Braine. Mr. Bird. Mr. Bailey. Mr. Glassington. Mr. Tyrrell. Mr. Hewitt. Dr. Winslow. Mr. Tyrrell. Dr. Winslow.
London Dental ..	Mr. David Hepburn ...	Mr. Smale ...	Monday, 9 a.m....	
" "	Mr. R. H. Woodhouse...	Mr. Lawrence Read ...	Tuesday, 9 a.m....	
" "	Mr. Gregson ...	Mr. Arthur S. Underwood	Wednesday, 9 a.m....	
" "	Mr. Hutchinson ..	Mr. Claude Rogers ...	Wednesday, 9 a.m.	
" "	Mr. Henry Moon ...	Mr. George Parkinson	Thursday, 9 a.m.	
" "	Mr. F. Canton ...	Mr. Storer Bennett ...	Friday, 9 a.m. ...	
National Dental ...	Mr. Henri Weiss ...	Mr. Truman ...	Saturday, 9 a.m.	
" "	Mr. Alfred Smith ...	Mr. Willoughby Weiss	Monday, 9 a.m....	
" "	Mr. G. J. Williams ...	Mr. Giles Bradshaw ...	Tuesday, 9 a.m....	
" "	Mr. A. F. Canton ...	Mr. Marcus Davis ...	Wednesday, 9 a.m.	
" "	Mr. T. Gaddes ...	Mr. H. G. Read ...	Thursday, 9 a.m.	
" "	Mr. Harry Rose...	Mr. G. D. Curnock ...	Friday, 9 a.m. ...	
" "		Mr. W. R. Humby ...	Saturday, 9 a.m.	

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, May 15th, at 5.30 p.m. ; Committee of Management, May 18th, at 5.30 p.m. ; Medical Committee, May 14th, 5.30 p.m.

British Dental Association.—Representative Board, May 30th, at 3 p.m. ; Publishing Committee, May 28th, at 5.30 p.m. ; Benevolent Fund Committee, May 30th, at p.m,

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

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A
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No. 6.

JUNE 15, 1885.

VOL. VI.

The Approaching Meeting at Cambridge.

NOT the least interesting and useful function which the British Dental Association performs by the migratory character of its annual gatherings lies in the inducement which it holds out to Members to visit localities which, under other circumstances, might never have been brought within the range of their travels, except, perhaps, in intentions likely to be deferred and finally set aside for more convenient attractions.

Visits paid to towns under the auspices of our Association have more than ordinary interest, inasmuch as they are made under exceptionally advantageous circumstances, and our Members receive privileges and facilities for sight-seeing which cannot be extended to individuals except they be of exceptional repute or of high social standing.

The import of these remarks will be well understood by those who have had the pleasure of attending our previous

meetings, for on every such occasion we have not only been entertained socially, but have had every facility afforded to us for visiting every place of importance or interest to strangers. Apart from the enjoyment of these pleasant advantages, the Members have the satisfaction of realizing a most satisfactory assurance that dentistry is being recognized by the public as an educated profession, and the British Dental Association as its accredited representative.

Since our first meeting in London we have visited in succession several towns of importance, but without any disparagement to any of them we may venture to say that the University town of Cambridge stands out prominently as a place of absorbing interest, not only as an ancient seat of learning, but as having so imbibed the spirit of modern education as to have established under the ægis of its time-honoured University a school for the teaching of the Natural Sciences second to none in this country or probably elsewhere. It must be no small satisfaction to our executive to see the result of their applications for assistance from the different institutions connected more or less intimately with the University. When it became known that Cambridge had been selected for our Annual Meeting every encouragement was held out to us, and when two of the members of the Representative Board visited the town, they were, under the care of Dr. Cunningham and Mr. Rhodes, speedily put into communication with Professors Humphry, Michael Foster, and Macalister, and at once assured of their cooperation and support in whatever arrangements we might require to make, and the same liberal spirit was shown towards us by every professor or official to whom the matter was mentioned. All the science class rooms have been placed at our disposal, and the local Committee will have ample accommodation for our demonstrations and exhibitions and for all other needful business.

We have been informed by our Hon. Secretary that the Debating Hall of the Cambridge University Union has been placed at our disposal as the place of meeting. This hall is of handsome proportions and ample dimensions, and will prove a most suitable and commodious room for our purposes. We are informed that this is the first time in the history of the Union that such a concession has been made, and further, that during the period of our meetings, our Members are to be accorded the privileges of membership of the Union, which is equivalent to enjoying all the advantages of a well-appointed club.

The Master and Fellows of Caius College, which has always been pre-eminently the Medical College, when informed of the impending visit of the Association by Dr. Drosier, at once placed their large dining hall at our disposal for our annual dinner, and generously offered sleeping accommodation for a number of the more distinguished members of the Association. Similar accommodation will probably be afforded by other colleges, and the hospitality which Downing, the other Medical College, last year showed to the Eastern Counties' Branch, will no doubt be extended to the parent society.

The attractions of the town itself will no doubt be detailed to our Members by the Local Reception Committee, which has already done so much to forward our objects, but the Members will do well to acquaint themselves with the many places of interest before their visit, for which purpose we should recommend the Guide-book to be had for one shilling, from W. S. Spalding, 43, Sydney Street, Cambridge, in which will be found much interesting information with regard to the particular history and local interest attaching to each of the seventeen colleges. The work is by Dr. Humphry, F.R.S., and so may be relied upon for its accuracy. Particularly would we recommend

to our readers the detailed description of the stained glass windows in King's College Chapel. The extent and number of these windows and the richness of colour are perfectly bewildering to the stranger. It seems on entering the chapel as if it had been built as a gigantic frame for a series of gorgeous stained glass pictures which weeks and months of study would fail to render intelligible, but by the admirable description given in Dr. Humphry's book, the magnificent whole becomes enjoyable in detail. Fine as the windows are, however, they are only one of the beauties of this glorious chapel, and were they gone, it would still, with its magnificent roof and elaborate sculpture, hold its position as the pride and glory of Cambridge.

The quaint old-world character given to the town by the venerable college buildings cannot fail to impress the stranger, though in many cases the quiet secluded courtyards with their green turf and many shaded verdures are so shut in by blocks of modern buildings, that he might pass them unsuspecting their existence. There is always, however, an open gateway, and no visitor should fail to explore what lies beyond, as frequently the quaintest parts of the buildings are hidden away in the inner courts. The Science Schools, too, have to be found out, as they lie rather out of the usual track of sightseers. The curious little round Church of the Holy Sepulchre is well worth a visit, and in Trinity Street will be found Foster's Bank, a beautiful specimen of the domestic architecture of the fifteenth century, doomed, we believe, to make way for a modern structure very shortly. A stranger might wander for weeks through the streets of Cambridge and never see the Pythagoras School, the reputed oldest scholastic establishment in this town of ancient schools and colleges, but as it is situated in the grounds of our friend, Dr. Cunningham, none of our Members are

likely to miss the opportunity of inspecting what remains of it. Addenbrooke's Hospital and the Fitzwilliam Museum are prominent buildings, and sure to attract the attention of any who may chance to go into their locality, but they are modern and in all respects exceptional in their character.

We hope to see at our next Annual Meeting a gathering at once worthy of the ancient town of Cambridge, of the welcome we may expect from our *confrères*, and of our flourishing Association; and we trust that in our next number we may be able to publish such a list of papers as will induce many members of our calling who may not yet have thought it worth their while to join the Association, to come and judge for themselves of the work it is doing for our profession.

A Champion of Progress.

It is only the careful student of history who can realise the turmoil and labour and individual devotion by which the progress of our civilization has been pushed from step to step. The fact that conditions and privileges enjoyed without a thought by us, had to be fought for through much opposition and discouragement, and were exposed to failure through carelessness or through the insincerity of professed friends, fades away with the event, and it is only when some veteran champion of progress like the late Mr. Arnott, passes away from the obscurity of old age into the silence of death, that the events of his life recorded by some loving friends throw us back in the course of our lives and compel us to recognize that we, the present race of dentists, are in no respect the architects of our present professional position.

Twenty-eight years ago Mr. Arnott, at the instigation of some of our leading practitioners, first introduced the subject of dental education to the attention of the Council of the Royal College of Surgeons. To us it seems now a small matter that the College should have granted the diploma in dental surgery which we rightly consider the essential stamp of a qualified dentist, whatever other qualifications the holder may possess; and yet the perusal of the brief obituary of Mr. Arnott which

we are able to present to our readers, will show how this enlightened change had to be pursued through many difficulties. The registration of dentists is now an accepted fact and part of the law of the kingdom; yet we see how, at no very recent date, the influence even of a leader of the profession like Mr. Arnott failed to secure the attention of the Medical Council to the question.

Those who are content to work steadily and hopefully, may well take encouragement from these things, and those who think that everything is to be set right by a stroke of the legislative wand may learn wisdom from their study.

ASSOCIATION INTELLIGENCE.

Meeting of the Representative Board.

THE usual Quarterly Meeting of the Representative Board took place at 40, Leicester Square, on the 30th ult., Mr. J. S. Turner, Vice-President, in the chair. Present, Messrs. Blandy, of Nottingham, Cole, of Ipswich, Browne-Mason, of Exeter, Mahonie, of Sheffield, Rhodes, of Cambridge, and R. Rogers, of Cheltenham; together with Messrs. Canton, Oakley Coles, Hutchinson, T. Underwood, and A. J. Woodhouse, of London.

The business was of the usual character, including the consideration of certain cases of alleged infringement of the Dentists Act, and receiving a report of the progress which had been made in the arrangements for the accommodation of the Association at Cambridge during the Annual General Meeting to be held in August, which are already in a forward state.

The following gentlemen were elected members of the Association:—Messrs. Frank H. Goffe, of Birmingham, William Headridge, of Manchester, G. E. Hilder, of Blackburn, J. M. Lipscomb, of Kilmarnock, and W. R. Roberts, of Blackheath.

The Annual General Meeting.

THE arrangements for the Annual General Meeting, to be held at Cambridge, on August 27th, 28th and 29th, are progressing very satisfactorily, and we shall be able next month to give at all events a provisional programme. The Secretary would be glad if

members who are willing to read papers or give demonstrations would communicate with him without delay; several offers have already been received, but more are required. As regards the demonstrations more particularly, the experience gained in past years will be turned to good account, and there is reason to believe that the coming Meeting will be in many respects an improvement on those which have preceded it.

Eastern Counties Branch.

THE fourth Annual Meeting of this Branch will be held at the Swan Hotel, Bedford, on Wednesday, July 1st, Alfred Jones, Esq., sen., President, in the chair. The Council has decided not to ask for papers, believing that members will prefer to reserve these for the General Meeting at Cambridge in August, but some important business in connection with that Meeting will be discussed, and some interesting casual communications and specimens brought forward. The Meeting will not therefore be simply formal, and it is hoped that members will do their best to be present. Business will commence at 1 p.m., and dinner will be provided at the Swan Hotel after the Meeting.

Western Branch.

THE Annual Meeting of this Branch will be held at Hereford, on Monday, August 24th, under the presidency of Mr. G. C. McAdam. Members who may be willing to read papers or give demonstrations are requested to communicate with the Hon. Sec., Mr. H. B. Mason, Bedford Circus, Exeter.

Scottish Branch.

THE third annual meeting of this branch was held on Friday the 5th inst., at the Queen's Hotel, Dundee. Dr. John Smith, LL.D., of Edinburgh, presided, and amongst those present were Messrs. Amoire, A. and E. Cormack, Durward, McGregor, Macleod, Matthews and Reid, of Edinburgh; Campbell, Fisher, Gorrie, T. R. Fasch, Phillips, Sime, and Walker, of Dundee; Biggs, Brownlie, Price, and Woodburn, of Glasgow; Crombie and Williamson, of Aberdeen; Fraser, of Greenock, Crichton, of Perth; Hardie, of Montrose, &c.

Mr. BIGGS, the Treasurer, handed in a satisfactory financial report.

The SECRETARY reported that his attention having been called to an advertisement in a Berwick newspaper, apparently emanating from a member of the Branch, and containing the phrase "charges strictly moderate," he had communicated with the member regarding this infringement of the rules. The advertiser replied that he had entrusted the matter to a friend in the town, and was not himself aware of the terms of the advertisement. He afterwards received a letter from the friend referred to explaining that the writer had inserted the objectionable sentence. The advertisement was at once withdrawn, and it clearly appeared that the gentleman against whom the complaint had been lodged was in ignorance of the offence which had been committed in his name.

Mr. W. S. WOODBURN stated that at a meeting of the council of the West of Scotland Branch it had been unanimously resolved to invite the Scottish Branch to hold its next annual meeting in Glasgow. He had been asked to submit the invitation, and he could assure them that if it was accepted the members of his Branch would be very glad to see those of the Scottish Branch in Glasgow next year.

The motion was seconded by Mr. Campbell and carried unanimously.

Messrs. W. J. Hardie (Montrose), Stirling (Ayr), Gorrie (Dundee), and McQueen (Hamilton), were elected members of the Branch.

Mr. W. Campbell (Dundee) was then unanimously elected President for the ensuing year, Mr. Wilson (Edinburgh) Vice-president, and Messrs. J. A. Biggs and W. B. Macleod, were re-elected as Treasurer and Secretary respectively.

On the motion of Mr. Campbell, seconded by Mr. Biggs, the existing Council, including Dr. Smith, were also re-elected for another year.

The formal business being concluded, Mr. P. CROMBIE, of Aberdeen, read an interesting paper on "The Range of Dental Influence," which the pressure of other matter prevents our including in the present number.

A vote of thanks to Mr. Crombie having been passed with much applause,

Mr. W. B. MACLEOD read the paper on "The Dentists Act and Recent Prosecutions," which will be found at page 338.

At its conclusion, the President said every member of the Association owed his best thanks to Mr. Macleod for the great trouble he had had in connection with these prosecutions, and for bringing this objectionable practice to a termination. He thought he was quite right in suggesting that these prosecutions ought to be undertaken by neutral parties. It was exceedingly invidious for a dental practitioner to have his name bandied about as a prosecutor in cases such as these, and he was afraid that it would not be easy to find among our members another Marcus Curtius ready to jump into the gulf for the sake of the respectability of the profession, as Mr. Macleod had done. The members owed him a vote of thanks for the great trouble and the great disagreeableness he had been subjected to in conducting these prosecutions.

The following resolution was then agreed to and ordered to be communicated to the Representative Board:—"That in the opinion of this meeting it is desirable that all future prosecutions should, if possible, be conducted in the name of a neutral agent."

Mr. CAMPBELL then showed a patient who had been treated by Mr. Macleod at the Edinburgh Dental Hospital. He was a seaman, and whilst engaged in unloading a ship in the harbour of Dundee, the claws hanging from the crane struck him a violent blow on the cheek. A few weeks after a swelling began on the cheek, and in a few months this grew to enormous dimensions, not only externally, but internally, involving the gums and palate. He went to Edinburgh, where the left half of the upper jaw was resected by Professor Annandale. In January last, at Mr. Campbell's request, Mr. Macleod took him in hand at the Dental Hospital, and made an upper denture for him, which to a great extent replaced the lost portion of the jaw.

Mr. Campbell handed round a model of the upper jaw, remarking that it did Mr. Macleod great credit to have been able to get so perfect an impression, since the man's mouth was considerably contracted, and the jaws could not be widely separated in consequence. That Mr. Macleod had been able under these circumstances to get such an impression and to make such a denture, said a great deal for his mechanical skill.

The patient was then examined by the members, and the success of the operation very favourably commented on.

Mr. CAMPBELL then called attention to a case of double fracture of the lower jaw. His object in doing so was to show how very

small a wire could be used for the Hammond splint. He had no idea that so thin a wire could be used as a splint and give so good a result. At the meeting last year at Edinburgh he had spoken rather against this splint, but since then he had been in communication with Mr. Pedley and had been agreeably surprised to find that the wire he used was very much smaller than he (Mr. Campbell) had supposed; it could be readily bent and fitted to the jaw, and altogether he had found the splint much more simple than he had anticipated. In the case of which he exhibited a model there was a fracture to the left of the centre, and another at the ramus on the right side.

The PRESIDENT then proceeded to deliver his valedictory address as follows :—

With the advent of this meeting my term of office as President of the Scottish Branch of the British Dental Association comes to a close, and in resigning to my worthy successor that honourable appointment, I do so with feelings of congratulation to him as entering upon a pleasant and an interesting duty, one in which he will find every assistance, much kindly feeling, great consideration, and ungrudging lenity extended to him on all occasions by those composing the meetings and engaging in the discussions over which he will have to preside.

The provincial Branches of the British Dental Association—and noticeably among them the Scottish Branch—render the work of the parent society much lighter and much more precise, perspicuous and to the point in many cases, than would be possible were all the business to be carried out away from its own locality and surroundings, and concentrated exclusively at the head quarters of the society in London. The peculiar province and the special nature of the objects and action of these Branches, thus renders their existence desirable. Some of these objects have been exemplified and discussed, as you have just heard, at the present meeting, and may well illustrate the labour, foresight, and discretion, required in the discharge of its functions by such a body as the British Dental Association. The opinions which I advanced when I had the honour of entering upon my Presidency in March, 1883, I still hold in respect to the institution of Branches as adjutants in discharging the functions of the main association, and facilitating as I then said, “The consideration of, and the expression of opinion on matters affecting the welfare of the dental profession, without entailing the trouble

and expense of members in Scotland requiring to be present in London for such purposes." Let me take as an illustration of such matters two, perhaps somewhat trivial, but at the same time, broad and general examples of what might advantageously be considered by a branch society.

You will remember that at that time the prospective medical legislation on hand rendered it questionable, in the event of a State examination superseding those of the medical and surgical licensing bodies, whether these corporations would care when thus deprived of their major examining privileges to continue, or whether they would even be allowed to retain, the dental examinations in their own hands, and how far these examinations might possibly in such an event be modified, both in their extent and in the mode in which they might be conducted, and to this matter I drew the attention of the Branch. Happily for the Scotch corporations and for the cause of medical education and licensing in Scotland, where they had attained a perfection and achieved a success admitted as a model for all other schools of medicine, these proposed changes were not carried out, and dental education and licensing remain as they were.

But if in Scotland no alteration has been made in the arrangements of the dental examinations since that time, considerable changes have taken place in the examinations for the medical and surgical diplomas of the corporations. Previously the single diplomas of the Royal College of Surgeons of Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow were registrable qualifications, each one of itself conferring a license to practise. Now these diplomas are not granted singly, nor is admission to any examination for them allowed to candidates who are not already registered medical practitioners. Any candidate not medically registered must take the conjoint qualification of all the three licensing bodies in Scotland, namely, the Royal Colleges of Physicians and of Surgeons in Edinburgh and the Faculty of Physicians and Surgeons in Glasgow, to constitute a registrable medical qualification, outside the universities. This was introduced in accordance with the principle acted upon for many years in Scotland, and which indeed has ever since been the genesis and key note of every Medical Bill introduced in England, that every license for practice should include both a medical and surgical qualification. I need not occupy your time by going into details in this matter further than relates to the dental examina-

tion. Instead of the examination for the triple qualification being divided into two portions, as was the case under the former system, it now consists of three—the old first professional examination being now replaced by the first and second of the new system. This change, although affecting the dental examinations in Scotland in no material or direct manner, still has a certain bearing upon them. These examinations were modelled upon the lines of the surgical examinations, and the first professional dental examination was conformable to, and embraced the same subjects as the first surgical one. This I consider was an advantage in some ways. The passing of the one examination, namely, the first surgical, was held as exempting a candidate from the first dental examination; it was upon the same subjects, nearly as easy, and was conducted at one sitting, as the dental was. Now, however, it is likely that the first and the second surgical professional examinations will both require to be passed to confer such exemption. This I have said may be a matter of no material importance, and it is of less moment to exclusively dental than to those who may be also surgical candidates. But it interferes to a certain extent with that identity of character previously existing between the two examinations, and with the option of candidates who might wish to be prepared for adding a surgical to their dental diploma, and who with such a view might wish to have the choice of either of the two first examinations respectively.

Nor is it without a practical bearing in other respects. The question has actually arisen within the last month, whether a prize formerly open to students who had passed their first surgical professional examination, might not be offered to dental students, also, who had passed their first professional examination, and the difficulty hinged and still hinges upon the alterations described. This I bring forward as a matter illustrating those instances which, being local, are much more easily deliberated upon and discussed by a Branch than by the Parent Association.

Let me just mention one other matter, where some care and circumspection on the part of the Scottish Branch, and indeed of any of the Branches, may be required. It was only this day week that I was handed, for my opinion and decision, an application for admission to the Dental Examination of the Royal College of Surgeons of Edinburgh by a lady candidate, whose claims were indeed of no inferior order, whose preliminary examination fully entitled her to admission, but whose professional education—so

far at least as the non-special subjects were concerned—is and must still be for a time *sub-judice*. A great amount of care would have to be exercised whether we are to refuse or admit ladies as dentists (cries of “admit” and applause), well if you say admit, you are in danger of coming in conflict with a number of different bodies, for in some of our colleges and universities there are great differences of opinion on this question. The subject is one which ought to be very carefully handled, but it is one which I think might come under the consideration of a Branch Council such as we now constitute, and in considering it we have to take notice of the fact that this is a case where the general body might find itself in conflict with local educating and licensing interests, and where a branch association—dispassionately and impartially investigating and pronouncing upon such a question as the admission of female candidates for dental education and licensing—might be of much service in aiding the action of the licensing bodies.

I shall not, however, tax your patience or my own abilities by attempting to say much more on the sphere of action or the advantages derivable from these branch associations. As I have already said, their object is to facilitate the work of the Parent Association, and the work of the Parent Association is to see that the provisions of the Dentists Act are carried out. These provisions are—as stated by Sir John Lubbock in the debate on the second reading of the Bill, on February 19th, 1878—“to protect the public against quacks, by giving them an opportunity of ascertaining whether dentists were properly qualified.” The Bill was not intended to uphold the interests of a particular class, neither are the objects of the Association to be construed or interpreted as intended for individual or party purposes. Nothing would be more likely to alienate the sympathy of the public than such a suspicion, and I am sure that I can say nothing is further from the intention of either the Parent or Branch Associations.

The nature of a valedictory address does not call for, nor indeed does it admit of discussion, and the remarks I have offered and the subjects upon which I have touched, are therefore advanced more as matters of information or suggestion than otherwise, being possibly questions which may come to be dealt with under our new President, and having done so, I have now simply, and so far as my office is concerned, to bid the Scottish Branch—and in the literal sense of the expression—farewell.

Mr. CAMPBELL: Before we separate, I have pleasure in pro-

posing a most hearty vote of thanks to our worthy President, Dr. Smith, for his valuable services during the past year.

The meeting then adjourned.

THE DINNER.

In the evening the members of the Association and a number of friends dined together in the Queen's Hotel. Mr. Campbell, the newly-elected President, occupied the chair, and was accompanied on his right and left by Professor Pettigrew, Dr. Smith, Dr. J. W. Miller, Dr. Reid, Dr. M'Cosh, Dr. Keith Anderson, Dean of Guild Mathewson, Mr. Woodburn and Mr. A. Wilson. Mr. Biggs officiated as croupier. After an excellent dinner the loyal toasts were proposed and duly honoured.

Mr. W. B. MACLEOD then proposed "The Town and Trade of Dundee," to which the Dean of Guild replied.

The CHAIRMAN then proposed "The British Dental Association" in the following terms :—

MR. CROUPIER AND GENTLEMEN,—The toast which I have the honour of proposing is the toast of the evening, and I have the satisfaction of knowing that it requires no eloquence of mine to commend it to your favourable reception. The British Dental Association, although young (it has not yet reached its sixth birthday), has done good work, indeed many good works, for the dental profession and also for Her Majesty's lieges. Its roll of members, although numbering about 600, I consider small in proportion to the number of Dental Surgeons practising in this country. They are certainly, however, the cream of the dental profession. It is so in the beginning of all great movements, that the most able, earnest, zealous men come to the front, and this dental movement is by no means a small one. On the passing of the Dentists Act some such association as ours became a necessity, for while we had two efficient dental societies, one in England, the Odontological, the other in Scotland, the Odonto-Chirurgical, doing a great educational work, these confined their attention almost entirely to scientific subjects, to the exclusion of political matters.

I have said the British Dental Association was young in years ; it has not, however, been young in experience. For those who were instrumental in getting Government to pass the Dentists Act, these same men also became the fathers of the British Dental

Association. They had the wisdom to lay down the principles of this Association on the same lines as those of the British Medical Association, and in so doing were able to avoid the icebergs and shoals which a young society is so apt to meet with in the beginning of its career.

I think the itinerating nature of this Society to be a very valuable one, for in every place to which it goes it draws into itself a few of the *less* active members of the profession. I cannot conceive men having a love for their profession keeping aloof from such a society as the British Dental, where certainly they would profit from the experience of their fellows, and get that conceit which is so apt to grow from *separation*, taken out of them.

Societies are often spoken of in the feminine gender as "Sister Societies." Well, all ladies like to have ornaments and to wear them; and the British Dental Association, although a very young lady, has already in her possession not a few valuable ornaments which she may well be proud of, gems of the first water, such as John Tomes, James Smith Turner, and not a few others whom I need not name, who have freely and heartily given, not only their talents and their time, but also not a little of their means, to the formation and carrying on of the British Dental Association. There is one other, however, whom I must mention, who is present with us to-night, and whose name I have the privilege of coupling with the toast, viz.:—Dr. Smith. He has done more than any man in Scotland to advance the cause of dental education, and indeed to lift the dental profession to a place of honour. He has been President of the Scottish Branch, is now President of the British Dental Association, and has been re-elected President of the Royal College of Surgeons, showing in what esteem he is held by his fellows. I therefore ask you to drink prosperity to the British Dental Association, coupling this toast with the name of our esteemed and worthy friend, Dr. Smith.

Dr. SMITH, in reply, said the British Dental Association had been founded for the purpose of seeing that the provisions of the Dentists Act were properly carried out. The provisions of that Act were to secure to the public the knowledge of who were and who were not competent dental practitioners, that the public should not depend on the assumption of deceptive or specious titles, or the issue of illusory statements with regard to the professional capacities of any individual. Yet the British Dental Association could not of itself take up cases of this kind with the view

of disposing of them. It could not inflict any punishment, it could not erase a name from the register, any more than it could place one on the register. It was the prerogative of the General Medical Council to do this ; they could pronounce what was infamous conduct, and what they pronounced to be infamous was beyond appeal. The General Medical Council was the body to be appealed to in any such case. The medical corporations were exceedingly slow to take up any action of this kind. They were averse to undertake anything they were not absolutely certain of carrying out, and he thought that was a very wise example which the British Dental Association would do well to follow. It ought to be very cautious in undertaking any prosecution where it did not see its way thoroughly to carry it out. The Association has been accused of want of vigour in its attacks on men of that kind. He thought the Association had erred on the safe side in not taking up these cases precipitately. But he had no doubt that when occasion arose, the Association would in a dispassionate and impartial manner take up such cases and carry them out firmly and circumspectly to a successful issue. He concluded by thanking them for coupling his name with the toast.

Mr. WILSON : The toast I have to propose is that of the body under whose control and guidance the dental profession has been placed by Act of Parliament. Putting aside their action, or rather their inaction, as regards the purging of the Dental Register, which I think to some extent justified a little resentment on the part of the dental profession, with that exception their actions have been so far entirely satisfactory. I hope that in a short time we may have representatives of the dental profession on that Board. I have pleasure in coupling with the toast of the General Medical Council the name of Professor Pettigrew.

Professor PETTIGREW, in returning thanks, said : The General Medical Council is, perhaps, the best abused institution in Great Britain, but it is not on this account the less useful. It has a number of difficulties to contend against. First of all the interests are very mixed. There are nineteen licensing bodies represented, and when everyone of these has to have its say it becomes a rather tedious and complicated matter. Upon the whole, however, the deliberations of the Council will stand inquiry, and their decisions are generally just and right. Mr. Wilson has spoken of the constitution of the Medical Council. I think it is quite possible that within a few years the constitution of the Medical

Council will be overhauled, and I hope to see my friends on the right and left (Dr. Smith and Dr. Miller) at that Board. With regard to the purging of the register, I would have you to bear in mind what a difficult matter it is to bring in a new Act of Parliament, which is obliged to take in everything that has gone before. The register cannot be purged in the sense in which Mr. Wilson suggests. We have no power to do so. With regard to prosecuting those who do not do as we would like them, I agree with what Dr. Smith has said as to the action which is required. You should never prosecute unless you are sure of having a verdict, otherwise you will weaken instead of strengthen your position.

Mr. PRICE: I beg to propose "The Medical Faculty." We dental surgeons may fairly claim to be part of the Medical Faculty; and it is with gratitude and pleasure that I observe so many gentlemen present with us who practise in the wider sphere. I beg to couple the toast with the name of Dr. Keith Anderson, President of the Forfarshire Medical Association.

Dr. KEITH ANDERSON briefly returned thanks.

Dr. WILLIAMSON proposed "The Western Branch and other sister societies," remarking that by holding their next meeting in Glasgow, they would do much towards consolidating the society in that city.

Mr. WOODBURN, who replied, assured the members that they in Glasgow would be very glad to see them, and he assured them of a very hearty reception.

Mr. BIGGS: I beg to propose "the Health of our worthy Chairman." Though Mr. Campbell is, perhaps, one of the oldest members present, he is still as vigorous as the youngest. He has been well known among us for a long period, and we are all aware of the great interest he has taken in all the schemes for the enhancing the status of the profession.

Mr. CAMPBELL briefly acknowledged the compliment. Other toasts were proposed and responded to; several of the members contributed songs and recitations, and a most enjoyable evening was spent.

APPOINTMENT.

Mr. F. W. RICHARDS, L.D.S. Eng., has been elected one of the Hon. Dental Surgeons to the Birmingham Dental Hospital.

ORIGINAL COMMUNICATIONS.

The Dentists Act and Recent Prosecutions.

By W. B. MACLEOD, L.D.S.Edin.*

REPRESENTATION having been made to the House of Commons of the necessity for general medical and special dental education being received by those wishing to practise dentistry, and these representations having been backed by strong and undeniable evidence, Parliament in its wisdom passed the Dentists Act of 1878.

As it enacted compulsory education, it likewise conserved to those fulfilling the requirements of law certain specific titles and privileges, and also ordained certain penalties and disqualifications upon those who assumed the name or title of dentist, or its equivalent, or who by means of cleverly worded advertisements sought to lead the public by inference to believe that they had been specially trained for the practice of the profession.

But while ordaining compulsory education, the machinery for supplying this education was not provided.

The General Medical Council were appointed as a governing body, and they having approved the curriculum of study required by the Royal College of Surgeons of England for its license in Dental Surgery, the education and subsequent examination of fitness to practise was left to the medical schools, the profession, and the licensing bodies.

Under these circumstances it became necessary for the members, of the profession to combine themselves into an association for the purpose of maintaining the spirit and provisions of the Dentists Act, &c.

It was not the intention, and is still far from the intention, of the promoters of this Association, founded for this purpose, to make use of the law in any harsh or vindictive or narrow spirit; the main object being to secure a liberal and sufficient education for those engaged in or purposing to follow dentistry as a profession. The prosecution of offenders against the Act was therefore not the sole or even the primary object of its institution.

During the first years of the existence of the British Dental Association its efforts were entirely devoted to the establishment

* Read at the Annual Meeting of the Scottish Branch, at Aberdeen, on the 5th inst.

of machinery calculated to promote the advancement of dental and the allied sciences, to foster honourable professional intercourse, and to encourage the founding of educational centres.

The first years of its existence were entirely devoted to these ends, and it was not till 1883, five years after the passing of the Act, that steps were taken to institute a prosecution and vindicate the law, which owing to the generous forbearance of the Association was being openly set at defiance. A case was begun against one, G. Callander, but this never came before the court, owing to Callander deeming prudence the better part of valour and disappearing before the steps necessary to bring him before the bar were concluded.

In February, 1884, however, a case at the instance of the Association against one, T. C. Holford, for illegally using the title of L.D.S., a report of which appeared in the Journal of the Association for that month, came before the magistrate at West Ham Police Court, and was by him decided in favour of the prosecutor. Shortly afterwards steps were taken to initiate a prosecution in Scotland, and two cases were selected, one in the capital town and the other in a county town, in the expectation that, being typical cases, the decision arrived at would go far to settle the question at law, and afford a standard which would guide all future actions, should it unfortunately be necessary to institute actions against other offenders. The first case tried was that of Mr. Robertson, who subsequently admitted having been in business in the city of London as a bicycle maker's engineer as late as 1881.

On the 25th of October, 1884, Robertson was charged at the Edinburgh Sheriff Court, before Sheriff Rutherford, with infringements of the Dentists Act, in so far that he, not being registered, made use of the title 'Dentist,' and otherwise published advertisements which implied that he was registered or specially qualified to practise dentistry. On the case being called Robertson pleaded guilty, and through his agent stated that he would not offend again. Being the first case of the kind before the court, and no doubt influenced by the promise not to contravene the law in future, the Sheriff imposed a mitigated penalty of £5.

Notwithstanding the promise made to Sheriff Rutherford, Robertson continued to infringe the law, and was, in consequence, again charged on the 9th of January, 1885, before Sheriff Rutherford with similar offences. The accused again pleaded guilty, and was on this occasion fined £20.

The next case was that of Alexander Ross French, of St. Andrew's, in the county of Fife, lately confectioner in Dundee. On being charged with offences against the Act he, on the 27th of February, 1885, pleaded "not guilty," and the case was consequently adjourned for the production of evidence. On the 6th of March, 1885, the case came on for hearing before Sheriff Henderson at the Sheriff Court, Cupar, Fife, proof having been led by the prosecution, the defendant defended himself. The Sheriff in a brief but pithy summing up found the accused guilty, and with concurrence of the prosecution imposed a mitigated penalty, viz., £10. These cases were all taken at the instance of the British Dental Association. Mr. Canton, Hon. Sec. to the Association, and Mr. Macleod, Hon. Sec. to the Scottish Branch, being the nominal prosecutors.

The results have been that in each case the accused have abandoned the unlawful use of the titles and descriptions, which belong exclusively under the Dentists Act to those whose names are entered upon the Dentists' Register.

Further, the clear and definite opinions of the judges before whom these cases were tried has placed beyond doubt :

1. That no person can append to his description the letters L.D.S. unless such title has been conferred upon him by one or other of the licensing bodies.

2. That only those whose names are upon the Dentists' Register, issued by the General Medical Council, can make use of the title or designation, or description of "dentist," "dental surgeon," or "surgeon dentist," or make use of any name, title, or description, implying that he is registered under the Act, or that he is specially qualified to practise dentistry.

3. That each separate advertisement, or publication on separate sign-boards or localities, constitutes a separate offence, and as such is liable to the full penalty of £20.

4. That the publication of an illegal advertisement in a newspaper is a contravention of the Act, and that the repetition of the advertisement in a separate issue of the newspaper on a succeeding day or days constitutes a separate and distinct offence, and therefore each such repetition is liable in the full penalty of £20.

As it is much easier to find a flaw in an indictment than it is to prove transgression, these results may be looked upon as eminently satisfactory, but these have not been gained without labour and thought. The difficulties which at first stood in the way of

framing a likely to be successful indictment, owing to the painstaking and cautious proceedings of Mr. James Robertson, solicitor, our first law agent, and his successor, Mr. Lindsay Mackersy, S.S.C., have been completely overcome, and guided by the experience gained, we need be under no fear of a reverse should the British Dental Association again find it necessary to establish a prosecution for the protection of the public, the protection of our law-abiding students, or the vindication of our rights.

There is one point which I think has been made clear during these prosecutions, viz., that it would be much better for all parties concerned if the nominal pursuer should be some neutral party, such as our appointed law-agent, instead of, as formerly, an honorary official of the Association, who, of necessity, is a member of the profession in practice. I do not regret the part which, in my official capacity as your Hon. Sec., it was my duty under the circumstances to take, but experience has shown that the work could be better done by an accredited agent outside the dental profession. It would free the action from personal friction and bias, and deprive the party prosecuted of any pretence to ascribe personal motives of jealousy and spite, such as were so freely and unblushingly made use of in the case of the first Edinburgh prosecution, and which had the effect of raising for the time being a perverted and harmful sympathy on the part of a certain portion of the public in favour of the quack, under the impression that it was a case of persecution by a rival, or of a close professional union seeking to deprive a poorer, but mayhap cleverer, man of his well-deserved and honestly-earned success; whereas its sole intention was to prevent the illegal use of a title or description which implied that the person using it had gained his knowledge and skill in the legitimate channels as ordained by law. Any person may, at their own risk, take out teeth or put in teeth, or perform any other operation in the mouth, but they may not do so under cover of any title or description which is recognised by law as implying that his name is to be found in the Dentists' Register, which Register will ultimately become—as existing rights die out—a guarantee of education in well-known lines and an examination of established quality.

In pleading for a neutral prosecutor in all future actions, I may briefly state my reasons for urging this course:—

- 1st. That in having a neutral party it would be at once apparent to the public that no private motives had instigated the prosecution.

2nd. That the prosecutor would not be likely to be subjected to malicious and scurrilous attacks, anonymous or otherwise, or if so, he, the prosecutor, being free from professional etiquette and restraint, could answer such attacks as they deserved.

3rd. In the event of the prosecuted pleading not guilty, it would not necessitate the leaving of private business, and the consequent loss of time and professional emoluments which is, under the present mode, inflicted upon your Hon. Secretaries.

It need hardly be said that into these prosecutions no private motive was permitted to enter ; on the contrary, the accused were, as individuals, entirely unknown to the Hon. Secretaries or the Council of the Association, and action was taken against them solely upon their public appearances, but—in one case at least—this did not prevent your representative from being personally subjected to misrepresentation and annoyance. As this is our first general meeting since the case alluded to was before the Court, it may not be considered out of order in this communication to place on record a distinct denial to the malicious and foolish accusations made by Robertson during a statement in mitigation of his offence, a privilege which was permitted him *ex gratia* by the presiding Judge. The accusation made was that “a gentleman had called upon him, Robertson, and in the name of your Branch Hon. Sec. had offered him £400 to give up practice and leave the country.” Your Hon. Sec. never authorised any person to call on such or any other errand, nor did he himself call or write or hold any communication with Robertson before the trial on October 25th, 1884, nor has he done so since, although it has neither been for want of opportunity or provocation, but from a ruling principle that nothing of a personal nature should be imported into any action taken in the name of the British Dental Association.

The first time your representative saw Robertson was on the occasion of his second trial, when he attended the Court to prevent or, if made, to contradict a repetition of the false accusation. No such accusation was repeated, or the slightest attempt at justification or extenuation attempted by the accused, his demeanour in the presence of your Hon. Sec. being as craven and contemptible as on the occasion of the first trial, when your Hon. Sec. was not in Court, it had been calculating, cunning, unscrupulous, and bold.

Further, it may be stated as a curious coincidence, that a man bearing a strong family resemblance to the gentleman at present under consideration, but who could have no connection with him, as on reference to the official charge sheet we find him called Stewart Mackenzie, was, on the 27th of October, 1884, fined 10s. at the Edinburgh Police Court for riotous conduct, &c., in front of two dentists' places of business.

Another curiosity in connection with this case may be alluded to. Some person taking a peculiar interest in the case honoured your Hon. Sec. with several specimens of polite correspondence, but as these were unsigned, one can only conjecture from whence they came by comparing them with the holograph letter which is, along with one or two of the precious missives, handed round for your inspection.

It is for you to say whether a representation from this Branch should be placed before the Representative Council, asking them to consider the advisability of appointing neutral agents as prosecutors in any future actions.

Treatment of Pulpless Teeth.*

BY WILLIAM ELLIOTT, L.D.S.Ed. and I.

ASSISTANT DENTAL SURGEON, BIRMINGHAM DENTAL HOSPITAL.

As it is the good fortune of many of those present to practise amongst a class of patients who attach great importance to the preservation of their teeth, I have thought that any mode of treatment, showing a good percentage of successful cases, is worthy of discussion.

The application of the principles of antiseptic surgery, as practised at the present time, has so largely contributed to the success attained in the treatment of the teeth that there is no need to point out the importance it bears in our specialty.

It is worthy of remark that the preservation of partially necrosed teeth, when first attempted, met with considerable opposition on the ground that being dead they must necessarily act as local irritants, and as such exert a morbid influence on the surrounding parts ; and this belief I think accounts for the fact that the saving

* Read before a meeting of the Central Counties Branch of the British Dental Association at Birmingham, on January 15th.

of pulps was practised long before the treatment of dead pulps was thought desirable or proper.

Our knowledge of the anatomy of tooth structure has, however, changed this aspect of practice, for we now know that the pericemental membrane is in direct communication with the lacunæ and canaliculi of the cementum, and these act as nutrient canals to a large part of the dentine, so that as far as the nutrition of the tooth tissues are concerned the pulp is certainly not essential; in fact we find it at times almost devoid of vascularity and much reduced in size from continued calcification.

Septic inoculation, however, is not, I imagine, the only difficulty we have to contend with. A serious condition to guard against is the sympathy existing between two such allied and connected tissues as the pulp and pericemental membrane; for we must bear in mind that when a pulp is dead there is an increased amount of work thrown upon the investing vessels. I am referring to those cases where a soreness or congestion seems to follow the excision of a pulp when there exists a slight predisposition to such a state.

We may also bear in mind there is no further development of the fangs after the death of the pulp, placing an extra risk upon a tooth in this stage of development from the rapidity with which septic inoculation proceeds.

The treatment of pulpless teeth, broadly speaking, resolves itself into four classes.

1. Those cases in which the pus has formed an external opening or fistula.
2. Those cases in which the pus is enclosed, where it has made no external opening.
3. Those where from various causes it is impossible to carry out the treatment usually followed in the two preceding conditions.
4. Those in which the pulp has been excised, either in a healthy state or at any rate before stasis has supervened.

(I.)—In those cases where a fistula exists, my mode of treatment is to enlarge the canals as much as possible, in order that no septic matter be left in the dentinal tubes, and so possibly transmitted to the external vessels, and then to syringe until the fluid passes out of the sinus; to do this it is necessary to get a good opening at the apex. I generally use either creasote or iodine, or these two combined, and prefer to syringe out some half-a-dozen different times before filling up the canals, but should time be an object I think this process twice repeated may be satisfactory. After doing

this I fill the canal by saturating it with eucalyptus oil, and then packing in very small pieces of gutta percha. This is easily done, and fills the canal perfectly, thus excluding all septic matter. It possesses also the advantage of being non-irritating, non-conducting, and insoluble, and will admit of easy removal, desiderata of great value, and qualities which a perfect root filling should possess. I think also the risk of forcing any through the apical foramen is reduced to a minimum.

I have used in very many cases cotton wool saturated with oxychloride, but the irritating action frequently assumed by it, especially where the walls are thin and apex large, and the greater difficulty of filling the canals perfectly, have made me discontinue its use. While using this treatment internally, I keep the fistula open by means of a seton. I use a piece of waxed silk, saturated with iodine, or iodine and carbolic acid, in which are tied two or three knots. This will usually keep in place from two or three days to a week or more, and the fistula will keep open for a like time after it comes away. Upon an average it requires insertion about every ten days. The cases I have treated in this manner have been very successful, in fact I cannot call to mind any instance in which failure can be attributed to this method. I have notes of the following :—

Case 1. Mr. C.—Left upper lateral and right upper canine excavated and syringed with oxidised oil of turpentine, with creasote, and with eucalyptus oil and carbolic acid respectively, eight times between August 6th and 18th. At the same time the fistula were kept open. On December 12th the canals were permanently filled.

The case is perfectly satisfactory at the present time (May 12).

Case 2. Miss F.—Two upper first bicuspid were dressed with various antiseptics and the canals got into a healthy condition, after which they were filled with gold and gutta percha. After three or four months the fistula again appeared, when I performed rhizodontrophy. This proving of very little benefit, I now removed the fillings, filled the canals straight away and kept open the fistula for three or four months. After nearly twelve months treatment in 1883, these teeth have been quite right for a period of nearly two years.

Case 3. Mr. P.—Left lower first molar had been filled some twelve months previously and the canals dressed. On January 24th I kept the fistula open, and inserted a seton five times at a

week's interval. After nearly four months there is no return of the fistula.

Case 4. Mary D.—Upper left central had been treated by two or three dentists previously. On September 6th the canal was dressed with creasote, and afterwards once a week, until October 8th, when it was filled. At the same time the fistula was kept open. Quite right at the present time. This tooth had a fistula for about four years.

Case 5. E. H.—Upper right central was excavated on January 30, and dressed with creasote five times until February 19, when the canal was filled, and the fistula, which had been kept open, had closed permanently, remaining satisfactory.

In many cases I am inclined to think the canal can be filled permanently, as I have stated, at once if time be an object.

(II.)—In those cases where there is no external opening the treatment is less satisfactory and more difficult. I excavate the canals as carefully as I can, and use every precaution against matter being pushed through the foramen, and this care applies very forcibly to the lower teeth, and also in young people where the fangs are not fully developed.

For this purpose I always use a Gate's drill, which does all that is required by acting as a piston, without exerting too great force. I never use a syringe. I prefer to use in these cases either eucalyptus oil or iodine; these do not cause the albuminous constituents of the pus to coagulate, and they therefore do not decrease its fluidity and thus add to the difficulty of drawing it down the apex. A change of the kind of dressing used is very desirable in obstinate cases, and before using each dressing I pump up H_2O_2 , which I think gives a surer test of the amount of septic matter present than any physical means at our disposal. I permanently fill the canals in these cases also with gutta percha and eucalyptus oil.

(III. and IV.)—The treatment in the last two conditions I have mentioned may be considered together, viz., where the pulp has been excised or devitalised and entirely removed, or where from various circumstances it is impossible to remove the devitalised tissue.

I do not think it safe to fill a canal at once after pulp excision; there seems to me to be a tendency to congestion (especially when there is a constitutional predisposition to such) which I have previously mentioned as being probably caused by the extra work

suddenly thrown upon the peridental membrane. It is my custom to fill these canals with creasote on wool, to seal the cavity and to apply iodine around the tooth.

The plan of preventing the decomposition of devitalised tissue in canals by means of arsenious acid, first suggested by Mr. Coleman, is only applicable strictly to cases where such tissues cannot be removed. Arsenic is undoubtedly the best preservative of organic matter we have, but its effect upon different individuals is so varied, and its absorption by the vessels so rapid, that I think there is a great risk of failure in using it. I am never sure of success, the result is so uncertain.

In referring to the notes of cases treated in this way, I find satisfactory results in about 50 per cent. of them. In some mouths teeth identically treated have given different results, so that my conclusion has been against its use.

In all cases where there is threatening suppuration I have found sulphide of calcium of great value. It seems to promote the absorption of inflammatory exudation better than anything else.

This subject of the preservation of pulpless teeth is one that tells very strongly either for or against our skill and ability in the estimation of our patients, so that any means by which we can ensure success after an expenditure of time and labour such as these cases necessarily involve, is well worthy of attention.

Introductory Remarks on the Study and Practice of Dental Surgery.*

By LEONARD MATHESON, L.D.S.Eng., Manchester.

WE inaugurate to-day, gentlemen, the practical commencement of a Dental School in Manchester, and in looking upon it as an important event, I do not think we are laying ourselves open to the imputation of being blind to the true proportion of things. It is important in this way—that it throws open for the first time, to all within a reasonable distance of Manchester who desire to avail themselves of it, the means of instruction required in the Dental Curriculum of all the licensing bodies of Great Britain; that is, the means is open to them without their having to leave home—to study, say, at London, or Edinburgh, or even

* Delivered at the Owen's College, Manchester, May 11, 1885.

Liverpool. And this being so, the opening of such a school has its importance also for the public, inasmuch as it is the general public who in the end are the greatest gainers from the extension of the means of special education.

This school is unusually fortunate in being associated with, nay, in being a very part of, the Medical School of the Owens College, a medical school that has already won for itself no mean position amongst those of the United Kingdom; and I do not think it ought to be forgotten to-day that the formation of this dental department has been due largely, if not entirely, to the exertions of Professor Gamgee, lately Dean.

Events follow each other so quickly nowadays, and, as a consequence, we are so inclined to consider it almost as a "right" that we should have advantages which our fathers never possessed, that we often fail to realize adequately how great our advantages are.

Let me remind you of this one fact, that it is but five-and-twenty years ago since the first dental school in England was formed. Before that time, for the student who looked forward to practising as a dentist, there was absolutely no means of obtaining the special education necessary to fit him for his work, unless he was fortunate enough to become the pupil of one of the very few good practitioners who then existed.

Moreover there was no recognized dental diploma to be worked for as a test and guarantee of ability to practise the speciality of Dental Surgery. The only diploma available was the M.R.C.S., and those who obtained it certainly obtained also an amount of general medical knowledge which stood them in good stead, but they would themselves, I think, be the first to admit that with regard to the knowledge of minute dental anatomy, and an intimate acquaintance with the many and varied operations and modes of treatment demanded by dental surgery proper, their training for the M.R.C.S. was practically valueless.

Only a few months prior to the formation of the London School in 1860, the Licentiatehip in Dental Surgery was instituted at the College of Surgeons. This diploma demands from those who enter for it a wide range of knowledge, both general and special, and offers some guarantee at least that he who obtains it is capable of practising dentistry efficiently. I say "some guarantee" advisedly, for though a man may pass his examinations successfully, he may yet in practice so entirely fail in showing those

qualities without which no mere accumulation of facts is of use, and without which no good operative work is possible,—I mean the qualities of *quick perception, delicacy of manipulation*, and above all, *thoroughness and accuracy*,—that his diploma may be the veriest sham, absolutely good for nothing as a token of skilful ability.

However, these things depend on the man, not on the diploma, and the L.D.S. is undoubtedly a boon to be highly valued. And not only is it a great boon, but its acquisition, or that of some equivalent diploma, is now simply a necessity to those entering the dental profession. For as you know, since the passing of the Dentists Act in 1878, no one commencing practice subsequent to that date, has any legal right to the name of dentist unless he possesses one of certain specified diplomas.

Now, broadly speaking, what is the knowledge required by the L.D.S., and why is such a wide range necessary? For that the range required *is* wide, and the amount of preparation considerable, both as regard to the time that must be spent over it, and the variety of the studies demanded, is very clear when I remind you that the membership of the college itself does not require a longer, if so long a period of preparation, nor a larger amount of actual work either, seeing that the much larger quota of practical work demanded from the dental student quite makes up for the more extended mental study of the “general.”

Let us consider briefly, why it is necessary for a dental student to extend his studies so widely.

The teeth having a peculiar anatomy of their own, and holding also quite a peculiar relation to their immediately surrounding parts, are living members of the general bodily organism, and as such are intimately connected with the vascular and nervous systems. They are placed at the beginning of the alimentary tract, and play an important part in the digestive process. Their diseases, besides being the cause of terrible suffering, and if unattended to, or carelessly treated, of the premature loss of the organs of mastication, may even result in death; and they do give rise not infrequently to serious disturbances in the functions of other important organs. And on the other hand, many morbid conditions of the system, and general diseases do very serious injury to the teeth themselves. If the important relations of the teeth to other parts, both in health and disease is once fairly understood, it will then be clearly seen how very important to the dental student is an accurate knowledge of the anatomy of the

head and neck, along with a clear idea of general anatomy, (without which strictly local anatomy is not likely to be properly understood); it will be evident that an intimate acquaintance with physiology—especially the physiology of circulation, of nutrition and above all, of the nervous system,—is absolutely essential; whilst a study of general diseases, especially such as are associated with a morbid or altered condition of the nervous system, or of some part of it, and such as have an important influence on nutrition, will throw much light on many important points in the consideration of dental disease.

But besides their general knowledge, the importance of which cannot be too strongly insisted upon, it is necessary also to mention dental surgery and dental mechanics, the diligent study of which can alone enable you to practise successfully as specialists.

With regard to these, I may say this: that whilst lectures and reading are undoubtedly important, as a means of acquiring a general knowledge of the subjects in question, you must depend far more upon the facilities afforded you at the dental hospital for the acquisition of a practical acquaintance with, and practical skill in treating the various forms of dental disease.

And looking forward to your work at the dental hospital, I would press particularly upon you one consideration. I would urge you not to look upon the cases presenting themselves at the hospital, simply as so many opportunities for “doing” an extraction, or filling. It is very easy indeed for the student to slip into this habit of mind, but let me warn you against it as mechanical and unprofessional in the highest degree.

The proper attitude to maintain is rather that of looking upon each case as an opportunity for careful diagnosis, and for such treatment as, on due consideration, promises the greatest amount of ultimate comfort to the patient. If you get into the habit of placing the well-being of the patient as a motive in your work, always before the comfort or even reputation of yourself as operator, you will be in the right direction for acquiring that true professional spirit which is so much needed to raise dentistry to its true position as a branch of medicine.

In making an examination of a case, let your inspection of the mouth be both deliberate and gentle. Do not jump hastily to a conclusion as to the cause or causes of pain complained of by your patient; and do not imagine that, to discover decay, or to prove the presence of an exposed pulp it is necessary to thrust

your probe energetically into sensitive dentine, or to plunge it into the pulp chamber. Such a mode of procedure, whilst quite unnecessary for the formation of a correct diagnosis of any particular case, can only startle and terrify the patient, justifying his or her terror of the dentist's chair, and adding not a little to the difficulty,—often considerable to begin with—of establishing between patient and operator a feeling of confidence and right understanding. And I urge upon you to use towards your patients as much gentleness as is consistent with thoroughness, for this reason also, that a cautious and gentle touch will often enable you to arrive at a right conclusion in more or less obscure cases, where rough handling, causing a nervous patient to wince and shrink continually, may easily mislead and result in a mistaken diagnosis.

As to the operations that you undertake, especially those of a conservative character, strive to aim always at thoroughness and extreme nicety and precision. And in doing so, put aside, at first, all thought of rapidity in your work. Quickness in operating is an excellent thing, and a thing to be sought after, but it is not worth having if obtained at the expense of accuracy and thoroughness, and it is to the acquisition of the latter qualities that all your energies should be at first directed.

And here let me say, what an excellent training for the patient, exact work required in operating, and for the delicate and yet firm touch so essential to the skilful operator, is the three years' work in the work room required by the schedule of the College of Surgeons. Besides its own special value, a thorough mechanical training is of the utmost importance to the would-be successful operator, and to despise or shirk it is simply like neglecting to lay a solid foundation as the first step in the building of a house.

One other matter, gentlemen, I would touch upon, before closing these introductory remarks. Fifty years ago, or less, but a very small minority indeed of those practising dentistry were worthy of the name of dentist—*i.e.*, were men who studied the diseases of the teeth, and who sought to treat those diseases in a scientific manner. The great majority of so-called dentists were men who disgraced the name by simply making a trade out of supplying people with artificial substitutes after indiscriminate and reckless extraction of natural organs.

Things have improved not a little during the last twenty or thirty years, but unhappily, it is quite unnecessary for me to tell

you that the Dental Register is still disfigured by the names of men who are not ashamed to make, in their own words, the "selling" of teeth their sole calling,—who make but the merest pretence of undertaking the treatment and preservation of the natural organs, and who for want of any effort to obtain the necessary training, are quite incapable of dealing successfully with the diseased and abnormal conditions to which the teeth are but too frequently subject.

To this unpleasant subject I should not have referred, but that I am anxious to deepen the desire which I believe is possessed by each of you, to do what in you lies towards raising to its proper level that branch of the medical profession to which you have chosen to devote yourselves.

It behoves those of us who have to teach, alike with those whose business it is to learn, to make it our endeavour so to work as to promote the growth of a true professional spirit—a spirit which will make you eager to acquire the skill and knowledge necessary successfully to cope with the difficulties of dental practice, and to alleviate with a firm and gentle hand the sufferings of those who place themselves under your care.

I have heard it said by practitioners of long standing, that when first they entered the profession many years ago, it was a by no means unheard of thing to meet with men who denied that as a general practice filling of decayed teeth was of any real use. Nay, even now, there are not a few who have but a half faith in its efficacy. What is the reason of this? It is simply that such men, having sunk into a slovenly method of work—or perhaps it would be more true to say—having never striven to acquire the power of delicate and accurate manipulation, have returning into their hands time after time the failures which rough and inaccurate work can alone result in, and so they get weary of, and lose all faith in filling as serving any practical and permanent purpose.

And it is not surprising, that, as a consequence of inaccurate and faulty, and therefore unsuccessful fillings, a certain section of the public should be more or less incredulous of the value of filling—that most important of all dental operations. I have taken as an example the operation of filling, but there is a very great deal to be done in educating the public to understand the value of all careful dental operations of a conservative nature; and every man who enters the profession after a careful training, and with the intention of practising it as a profession, becomes a centre of know-

ledge and information to those who seek his services. May it be the lot of each one of you, gentlemen, to combat, and to combat successfully, by thorough, conscientious and thoughtful work, the low opinion of the value of conservative dentistry which is far too common and widely spread.

And I would say to you finally, do not be disheartened by the many difficulties you will find constantly cropping up in the way of your doing the best operative work. It will be a long time—long after you have left the Dental Hospital to enter upon private practice—before you can expect to feel really at home in difficult operations, but perseverance and a determination to succeed will, in the end, make difficulties dwindle to a minimum, and will bring also, as an inevitable result, a pleasure in scientific and successful work, which, whether associated or not with pecuniary success, will be greater and more lasting than any that mere pecuniary success can ever bring to you alone.

HOSPITAL REPORTS AND CASES IN PRACTICE.

A case of Ivory Exostosis of the Auditory Meatus successfully removed by means of the Dental Engine.

BY ARTHUR H. BENSON, F.R.C.S.I.

ASSISTANT SURGEON, ST. MARK'S OPHTHALMIC HOSPITAL.*

THE case was that of a gentleman, aged 33, who had suffered for some years from deafness caused by an accumulation of cerumen behind an exostosis of the meatus. When the cerumen had been removed, the membrane could just be seen through a small space which remained between the apex of the exostosis and the opposite wall of the meatus. The growth was attached to the anterior wall of the meatus externus, about three-quarters of an inch from the orifice. An attempt had previously been made to remove it by means of electrolysis, and a shell of necrosed bone had thus been removed from its apex, but the action of the current was deemed too slow, and some more active measures desired.

OPERATION. Dr. Arthur Baker kindly assisted me at the operation, which was done in his consulting room. Sitting in the dental chair ether was administered, and a vulcanite speculum

* Read before the Surgical section of the Academy of Medicine in Ireland, January, 1885.

which was cut short for the occasion, was inserted as a guard to the soft parts. The idea was to perforate the base of the tumour with a drill, and then with a saw or file to cut upwards and downwards from the central hole. This I found impossible to do owing to the density of the bony tumour, its sloping sides, and the difficulty which I experienced in working the drill in the ear.

After some unsuccessful attempts to make an impression on the side of the base, Dr. Arthur Baker suggested that it might be more easy to use the saw from the top. The soft parts over the exostosis were removed by a few turns of a round burr, and a fine fissure burr being attached to the engine, a groove was, with much difficulty cut by Dr. Baker in the base of the tumour, into this a small enamel chisel was inserted, and the bony apex of the exostosis was by a slight blow of a lead mallet removed. There was a very considerable amount of bleeding during the operation which however, soon ceased, and the ear was plugged with boracic acid powder.

The greatest possible difficulty was experienced in working in the ear with the instruments intended for the teeth, as they were not long enough to reach in without blocking up the view of the parts, and rendering it necessary to stop and syringe out the meatus every few seconds. Had it not been for Dr. Baker's skill in working the engine I do not think the operation would have succeeded, for he did most of the latter part of the work. The operation lasted two full hours. No bad symptom followed, and in a fortnight the ear was looking quite healed, the hearing which for a few days was defective from the swelling, &c., was normal, and the patient returned to the country. Since then I have seen him from time to time, last in January, 1885, just a year after the operation; there was not the slightest trace of an exostosis in the old position, only a slight scar marking the place it had occupied, and hearing remained perfect.

IN the lately published list of those who have passed in the Natural Science Tripos at Cambridge, we are pleased to see the name of our well-known and energetic member, Dr. Geo. Cunningham, and among the successful candidates at the recent examination for the Fellowship of the Royal College of Surgeons of England, will be found the name of Mr. F. Newland Pedley. To work for an examination in the midst of the worry of practice requires a considerable amount of strength of mind, and we heartily congratulate those gentlemen on their well-earned distinctions.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The General Medical Council.

THE usual annual session of "The General Council of Medical Education and Registration," was opened on Tuesday the 12th ult., with the customary address from the President, Sir Henry Acland, which, however, contained no reference to dental affairs.

Amongst the reports which were laid before the Council was the following, showing the results of professional examinations held during the year 1884 for qualifications registrable under the Dentists Act :—

LICENSING BODY.	With Curriculum		Without Curriculum		Total.	
	Rejected.	Passed.	Rejected.	Passed.	Rejected.	Passed.
Royal College of Surgeons of England.....	8	18	0	0	8	18
Royal College of Surgeons of Edinburgh.....	0	3	2	2	2	5
Faculty of Physicians and Surgeons of Glasgow	0	2	3	1	3	3
Royal College of Surgeons in Ireland	0	0	5	20	5	20
Harvard University (degree of D.M.D.).....	4	10	0	0	4	10
Totals.....	12	33	10	23	22	56

On the 15th, the Report of the Finance Committee was presented, with the usual statement of the Receipts and Expenditure of the Dental Registration Fund during the preceding year. The receipts amounted to £585 17s. 11d., being a decrease of £82 6s. 5d., from the amount received in 1883, whilst the expenditure had amounted to £896 2s. 9d., being an increase of £151 4s. 7d., over that of the previous year.

On the 18th, a petition addressed by Mr. Edwin Wooton to the Privy Council, praying that his name might be entered on the Dentists' Register, and which had been forwarded by the Lord President of the Privy Council to the Medical Council, was read by the Registrar. Mr. Wooton stated in his petition that he had been

RETURNS to both HOUSES of PARLIAMENT of RECEIPTS and EXPENDITURE of the DENTAL REGISTRATION FUND of the GENERAL MEDICAL COUNCIL, for the year ending January 1, 1885, made pursuant to Section XXXIII. of the *Dentists Act* (1878).

RECEIPTS.			EXPENDITURE.		
BALANCE from 1884 ...	£	s. d.	GENERAL COUNCIL'S FEES AND OTHER EXPENSES ...	£	s. d.
Amount (deducted) to be repaid to ENGLISH BRANCH COUNCIL ...	9395	15 4	EXECUTIVE COMMITTEE'S FEES AND OTHER EXPENSES ...	355	9 6
	1192	13 8	PRINTING ...	107	5 1
	8203	1	SALARIES, HOUSE EXPENSES, &c. ...	83	1 11
			LAW EXPENSES ...	322	15 7
REGISTRATION FEES:—			MISCELLANEOUS EXPENSES:—	2	0 0
74 Registration Fees at £5 each ...	285	0 0	Auditor's Fees ...	£	s. d.
63 Registration Fees at 5s. each ...	16	15 0	Expenses at General Council's Session and Executive Committee Meetings	10	10 0
	301	15 0	Sundries ...	11	17 8
SALE OF PUBLICATIONS ...	11	9 11		3	3 0
				25	10 8
DIVIDENDS:—			BALANCES:—		
One year's Dividend on £9281 15s. 3d. of New Three per Cents. (less Income Tax) ...	272	13 0	Cost of £9281 15s. 3d. of New Three per Cent. Stock ...	9000	0 0
			Amount in Bank on January 1, 1884... ..	17	12 6
				9017	12 6
			Amount (to be deducted) to be repaid to ENGLISH BRANCH COUNCIL ...	1124	15 8
				7892	16 10
				£8788	19 7

Audited and found correct:—
 QUILTER, BALL, CROSBIE, CLEGG, & WELTON.
January 13th, 1885.

Signed { RICHARD QUAIN, M.D. } *Treasurers.*
 { HENRY A. PITMAN, M.D. }
 { W. J. C. MILLER, B.A. } *Registrar.*

engaged in practical researches in Dental Surgery as far back as 1876, *i.e.*, anterior to the passing of the Dentists Act; that at the time of the passing of the Act he was thinking of going abroad, and did not consider it necessary to register; that in 1883 he had applied to the General Medical Council to be allowed to register, and had been informed that the time had gone by for his application to be considered, and he now begged that the Privy Council would direct that his name should be entered on the Dentists' Register, in spite of the reply of the Medical Council.

Sir HENRY PITMAN moved that the communication be received and entered on the minutes, explaining that it was quite illegal for the Council to do what the petitioner asked. Presuming that he was in practice before the Act was passed, he might have been registered had he applied within the allowed time. He now applied long after the time had elapsed, and the Act of Parliament did not admit of his being registered except with a qualification.

The motion was agreed to.

The following communication from the University of Pennsylvania was then read:—

“University of Pennsylvania,
“Department of Dentistry,
“Philadelphia, *Feb. 9th*, 1885.

“DEAR SIR,—I am directed by the Faculty of the Dental Department of the University of Pennsylvania to make inquiries of the proper authority in England in regard to the recognition of our diploma there. Understanding that you, as Registrar of the General Medical Council, would be the one to confer with, I take the liberty of addressing you on the subject.

“The University of Pennsylvania is one of the oldest educational institutions on this continent, and has connected with it a Dental Department quite equal to any other, here or elsewhere. The English Council has recognized the diplomas of Harvard and Ann Arbor Universities, but has, heretofore, refused similar recognition to us, thus placing our graduates from Great Britain at marked disadvantage to them of the schools named. We feel that our department lacks nothing necessary for a good foundation in dental instruction, and would be pleased if the honourable members of the Council could come to the same conclusion, and place our diploma in England in the position we think it deserves.

“I send by the same mail our last year's catalogue and announcement; that of the present year not yet issued.

“The faculty have adopted a preliminary examination for entrance to the junior year. This does not appear in the announcement sent,

but will in that for 1885-86. The examination will comprise a knowledge of English branches.

"Trusting I may be able to report to the faculty a favourable response to this request,

"I remain,

"Very respectfully, yours,

"JAMES TRUMAN,

"W. J. C. MILLER, Esq., B.A."

"Secretary."

SIR HENRY PITMAN: I move that the communication be received and entered on the minutes. It is an application from the University of Pennsylvania to have their course of study recognised, upon the representation that they mean to improve it. I think until they have done that it will be better for the Council to wait.

Mr. SIMON: Is it not a very considerable institution?

SIR HENRY PITMAN: The University itself is, but the Council have already decided that the course of study for dentistry is not up to the standard which we require. They promise, however, to do something, and until that is done I think the Council had better not take any further action.

In answer to a question by Dr. Haughton,

The REGISTRAR said that the Executive Committee had carefully examined a number of similar applications which had been brought before them, and had come to the conclusion that only two of the institutions should be recognised, namely, Harvard and Michigan. At a subsequent date three other applications had been made, and the Council, at the suggestion of the Executive Committee, re-affirmed their decision.

Dr. HAUGHTON said he believed that, according to public opinion in America, dentistry stood much higher at Pennsylvania than at Michigan.

SIR HENRY PITMAN said he had not asked the Council to do as he proposed without advice. He had received a private communication—he did not know that he should be justified in mentioning the name of the writer—stating, "I hear that a certain dental college in this country is making great efforts to obtain the registration in England of its graduates. We have, however, reason to believe that the standard of examinations and the general requirements demanded are not so high as is desired here and at home. Should such come under your notice, I hope before recognising the institutions every inquiry will be made."

Dr. HAUGHTON: I should like to ask if there are not two dental

colleges in Philadelphia, one of the highest respectability and the other not.

The REGISTRAR: There were two. In the case of one of them it was clearly proved that the degrees were only bogus degrees, but both applications were refused at the same time. The Executive Committee recognised Michigan as having a longer course of study. It is all set forth in the Minutes, volume XVI. The matter was gone into at considerable length.

Dr. STORRAR: I do not want to raise a discussion on this matter. I may state that we have had some communication with gentlemen who are well-informed with regard to the merits of the Pennsylvania University, and who state that there are good grounds for declining this application.

Dr. HAUGHTON: I hope the matter will be postponed until I can get an answer from Dublin from men of the highest authority.

SIR HENRY PITMAN: If you desire that the matter should be postponed I have no objection.

The consideration of Sir Henry Pitman's motion was accordingly adjourned.

On Wednesday, May 20th, the following communication from the Hon. Sec. of the British Dental Association was laid before the Council, together with a formal certificate from the Sheriff-Clerk of Mid-Lothian to the effect that Chas. Rudolph Werner had pleaded guilty to six charges of fraud and had been sentenced to six months' imprisonment. Werner had been registered on Dec. 31st, 1878, as "in practice before July 22nd, 1878."

"British Dental Association,

"40, Leicester Square, London, W.C.,

"April 24th, 1885.

"DEAR SIR,—I am empowered by the Representative Board of the British Dental Association to draw your attention to the enclosed Extract from the Sheriff Court, Edinburgh, and I shall feel obliged if you will kindly place the same before the General Medical Council for its consideration, in order that, if it sees fit, it may give the necessary instructions for the removal of Charles Rudolph Werner's name from the Dentists' Register.

"I am, your obedient, Servant,

"F. CANTON,

"W. J. C. MILLER, Esq., B.A."

"Honorary Secretary.

On the letter being read, SIR HENRY PITMAN said his attention had been called by the Solicitor for the Council to the fact that, according to Section 15 of the Dentists Act, it was necessary that

before the Council could consider the application the case should be referred to the Dental Committee to ascertain the facts.

Dr. QUAIN suggested that the facts had better first be ascertained by the solicitor.

Dr. STORRAR remarked that the Dental Committee could very easily ascertain the facts for themselves.

Sir HENRY PITMAN then proposed "that the communication from the British Dental Association be received and entered on the minutes and referred to the Dental Committee"; this was seconded and agreed to.

On May 22nd, Sir Henry Pitman moved that the communication from the University of Pennsylvania, which had been brought before the Council at a previous sitting and postponed at the suggestion of Dr. Haughton, should be received and entered on the minutes.

The motion having been seconded by Mr. MARSHALL,

Dr. HAUGHTON said he had written to a high authority, and the answer he received was that so far as the teaching facilities for the practical parts of dentistry were concerned, the advertisements of the University implied a good training, but the time for study required from the student seemed quite inadequate. The letter he had received said, "If I had a vote I would entirely oppose such a proposal. Such a course would at once lower the standard of education required from dental students by the licensing bodies in the United Kingdom." He would move "That the dental qualification of the University of Pennsylvania be not now recognised."

Dr. STORRAR seconded the motion. He said that he had endeavoured to obtain authentic information with regard to the Pennsylvania University, as it had been represented that great provision had been made there for the teaching of dentistry. He was informed that Mr. Charles Tomes had seen the school. That gentleman was well known as a great authority on all matters connected with dental education, he therefore wrote to him, and received in reply a letter which said, "It will be time enough to talk of recognising this dental school and its qualification when the nature of the proposed examination is fully known. The cost in time and money of a dental qualification would be less in America than here, and a recognition by the Council standard is tantamount to an admission that our educational standard is too high. The American colleges are most anxious

to manufacture dentists for European use, and the free tender of promises justifies our asking for their fulfilment before we take any action which may tend to the discouragement of education here at home, where the struggle for improvement has been sincere and effective." That was a terse statement of the grounds upon which the Council should decline to accept the degree of the Pennsylvania University. The University of Michigan had been recognized by the Council, and the number of passes in proportion to the number of candidates was rather suspicious. In addition to that, he had been told by good authority that a gentleman was present at a lecture there delivered by Dr. Taft, who said that a proposal would be likely to be accepted for passing the graduates in dentistry of the other universities in America through the Michigan gate. That meant that the Michigan University should be used as a means of access by bodies which were not recognised by the Council. He did not propose to suggest that any step should be taken at present with regard to this matter. The returns from Michigan might arrive before the autumn session, and he had merely made this statement in order that the members of the Council might turn it over in their minds and take every opportunity of obtaining further information. Harvard University had been loyal to the conditions laid down by the Council, and their Dental graduates were diminishing in number. The Council should therefore be exceedingly careful about American graduates and licences.

The PRESIDENT said that the several States in America made their own regulations in regard to this matter, and he could entirely confirm what Dr. Storrar had stated with regard to Harvard.

The Resolution was agreed to.

The following report by the Dental Committee was received and ordered to be entered on the minutes.

REPORT OF THE DENTAL COMMITTEE.

Members.—The President, Sir Henry Pitman, Dr. Quain, Dr. Haldane, Dr. Aquilla Smith.

"The case of Charles Rudolph Werner (*Minutes* for May 20th, Clause 14) having been referred to them to ascertain the facts in regard to such case, the Dental Committee find these facts to be as follows :—

"That Charles Rudolph Werner (registered on December 31st, 1878, as in practice before July 22nd, 1878), was on December 8th, 1884, in the Sheriff Court of Mid-Lothian, held at Edinburgh, convicted

of misdemeanour, and thereupon sentenced to six months' imprisonment, in due course of law."

The Dental Committee report these facts to the General Council.

On Saturday, May 23rd, the Council deliberated in private on the case of Chas. Rudolph Werner, and on the public being readmitted, it was announced that the following resolution had been passed :—"That the Council direct the Registrar to erase from the Dentists' Register the name of Charles Rudolph Werner."

This concluded the dental business, and the Council soon afterwards closed its session, but with the intention of meeting again in the autumn.

The Odontological Society of Great Britain.

At the usual monthly meeting of this Society which took place on the 4th ult., Mr. R. WHITE, of Norwich, vice-president, in the chair, Mr. E. LLOYD WILLIAMS exhibited a model of the upper jaw of a lady, aged sixty, showing a large polypoid mass springing from the palate, to which it was attached by a broad flat pedicle; the patient had worn a plate retained by springs for fifteen years. The occurrence of such growths under these circumstances was, he remarked, not uncommon, and this one was remarkable only for its size.

Mr. BROWN-MASON (Exeter) exhibited models of the mouth of a girl, aged eleven, whose upper jaw receded so much that the incisors closed a quarter of an inch within the lower, and the only teeth which articulated properly were the right first permanent molars. He asked for suggestions as to treatment, though he feared the case was incurable.

Mr. W. A. HUNT (Yeovil) related the case of a lady, twenty-eight years of age, who, after suffering for some time from very severe neuralgia affecting the right side of the head, consulted an irregular practitioner. The pain being apparently referable to the right lower first molar, that tooth was extracted; it proved to be sound, and the patient experienced but little benefit. However, after a six months' course of quinine, &c., the pain did slowly abate, but only to return as badly as ever on the *left* side. The patient now consulted Mr. Hunt, who found the right lower wisdom tooth erupted, but no appearance of the others; the teeth were well-formed and regular, but firmly compressed against

one another. It at once struck him that the advancing wisdom tooth must have been the cause of the pain on the right side, and that had the second molar been extracted instead of the first, the patient would have experienced much more speedy relief. This opinion was confirmed when on probing the gum, he felt the crown of the left lower wisdom tooth. He at once extracted the lower second molar on that side under gas, and within two or three days the pain completely subsided.

A year later the patient again consulted Mr. Hunt on account of pain of the same character on the right side. A cusp of the upper wisdom tooth on that side was just visible. The second molar was extracted, and relief at once followed. Six months later the pain returned on the left side more severely than ever. This time no signs of the wisdom tooth could be discovered by the most careful examination; the pain was, however, so typical that Mr. Hunt had no hesitation in extracting the second molar. It was then found that half the posterior buccal root and part of the crown had disappeared, the nerve canal being exposed for more than half the length of the root. The operation was again followed by immediate relief, and the third molar, the pressure of which had caused this absorption, soon made its appearance and eventually took up a very good position. The four consecutive sequences of the same cause and effect in the same individual were very remarkable.

Mr. WHITE said he believed such cases were more common than they were generally considered to be. He had lately seen a gentleman, aged forty, who had been suffering for some time from very severe neuralgia affecting the left side of the face. The upper second bicuspid had been extracted, but proved to be sound and the operation gave no relief. On very careful examination the upper second molar was found to be sensitive; it was extracted and it was then found that the pressure of the wisdom tooth had made a cavity on the distal surface. The patient obtained immediate relief.

Mr. J. S. TURNER remarked that the wisdom tooth was not the only one capable of causing mischief of this sort. Mr. White had recently brought forward a case in which a lateral had undergone very extensive absorption from pressure, and he had himself lately met with a case in which absorption had taken place in a lateral to such an extent as to expose the pulp cavity; the cause being the pressure of the canine which was coming down in front.

Mr. BOYD WALLIS showed a very fine hippopotamus skull from South Africa, also the jaws of a sword fish, and those of a larger fossil animal which he believed to have been an ichthyosaurus.

Mr. D. HEPBURN showed a model of the mouth and jaws of a young man, aged twenty-three, who had ankylosis of the lower jaw, the result of a bad attack of fever when he was ten years old. The jaw was immovable, he had not the slightest power of mastication, and only a very small aperture between the teeth on the left side of the mouth. In spite of this, the patient enjoyed very good health, and Mr. Hepburn did not feel justified in urging him to submit to operative interference at present.

The SECRETARY showed a model of the upper jaw of a man, aged thirty-four, which had been sent by Dr. Walker. The right permanent canine occupied the place of the right central, which had been accidentally knocked out when the patient was ten years old; the temporary canine was still in position and quite firm.

He also showed an upper model sent by Mr. Adams Parker, of Birmingham. The patient, a young man, aged seventeen, had a well-formed supernumerary tooth just to the right of the middle line, the peculiarity of the case being that this tooth had succeeded another of the same character and in the same position.

Dr. ST. GEORGE ELLIOTT then read a short paper on "Bridge-work," which was illustrated by a number of diagrams representing cases he had met with in practice.

Dr. Elliott said Bridge-work was not actually a new invention,—he had himself seen fifteen years ago a good example of this kind of work in the mouth of a patient, and it had been in use fifteen years at the time he saw it,—yet it was only during the last five or six years that it had come into anything like common use in the profession. Like other methods it might be carried to an extreme, and used without judgment in cases where a plate would have answered much better; still it was very useful in suitable cases. Patients were sometimes met with who had a very strong objection to wearing a plate. Singers, for instance, found a plate very inconvenient; very nervous and irritable patients also not unfrequently objected to them. In such cases "Bridging" often afforded a satisfactory means of remedying defects.

It was sometimes asserted that bridge-work was likely to cause trouble, and to do harm to the teeth which served as sup-

ports, owing to the difficulty of preventing accumulation of food about the parts; but this was a mistake. The work might and ought to be done in such a manner that no inconvenience whatever should arise from this cause, and perfect cleanliness could be maintained by the patient with less trouble than where a plate was worn.

Some amount of judgment and experience was required in adapting this method to particular cases. As an illustration of this he would mention a case which had come under his notice. The patient had lost his right upper lateral, and to replace it the dentist had devitalized the canine and inserted a platinum wire in the nerve canal. This wire, after being anchored by gutta-percha, was bent at right angles, and had a lateral soldered to it. No protection was given to the canine other than that afforded by the gutta percha, so that the tooth soon decayed and gave way, the bar bent under the strain of mastication, and the lateral was forced up into the gum. Dr. Elliott removed the appliance, cut down the canine to near the gum, and fitted on a gold-backed plate tooth, with a hole through the gold for the passage of a screw which was anchored in the stump by amalgam. The lateral was soldered to the pivot thus made, and on the mesial side of the lateral a pin was soldered which passed into a small cavity already existing in the central, where it was secured by a filling. Subsequent experience proved the value of having the bridge detachable, for after the appliance had been worn for some months the pin in the central gave way; the bridge was then quickly removed by unscrewing the nut, a new pin soldered on, and the apparatus replaced.

Dr. Elliott considered that the attachment of an artificial crown by means of a screw and nut was decidedly the best mode of pivoting for these cases, on account of its being easily detachable in case of accident. This was almost impossible when bridge-work was attached to crowns fitted on the Richmond principle. He found also that it was very difficult to prevent food and mucus accumulating under the overlapping edges of these crowns and leading to bad results. His experience of this method of pivoting dated back some five or six years, the results being at first most discouraging. These failures taught him that in order to obtain satisfactory results he must make his own screws. He found that when he used those sold by the dépôts the nuts came unscrewed and the crowns came off, frequently in two or three

weeks. The screws must be much finer than those usually sold, and the nuts must be conical and cut half through, so as to make them self-locking. He found also that aluminium bronze or German silver were better materials for the screws than platinum, since they became slightly oxidised, and thus held more securely.

Dr. G. FIELD said he had not used bridge-work very extensively, but he found that in exceptional cases it answered admirably and he used it under favourable conditions with great satisfaction to himself and to his patients. He had, of course, met with failures, but these had not been sufficient to discourage him, or to induce him to give up the method. He preferred the Richmond crown, or the Webb flat pivot tooth with gold backing, to the use of screws and nuts. In some cases he anchored the ends of the bar into adjoining natural teeth by means of gold fillings. The fillings would break away occasionally,—this could not altogether be prevented,—but as a rule they lasted very well. He did not approve, as a rule, of the plan of bridging over four or five teeth, and had only seen one case in which this had been satisfactorily accomplished. The objection on the score of uncleanliness was entirely theoretical; the bridge could always be made of such a form as to be easily kept clean.

Dr. A. S. RICHMOND handed round some models of cases of bridge-work which had been under his own care, showing various adaptations of the method. The subject under discussion was one to which he had given some attention, and which interested him greatly. He had a piece of bridge-work in his own mouth which was inserted in 1876, and which had therefore stood the test of nine years' wear, and he mentioned several cases which he had treated on this plan, and which had satisfactorily withstood from five to eight years' wear. These cases might serve to show the lasting character of the work. There was no difficulty whatever in keeping it clean, the teeth being supported clear of the gum, and the whole fitted as it should be in a proper workmanlike manner.

Mr. J. S. TURNER said that whilst he could not help admiring the ingenuity displayed in these methods of pivoting and bridge-work, he was rather at a loss to know what was gained by all this elaboration. The results might be perfectly satisfactory in a certain number of cases, but it must be remembered that operators did not always know of their own failures. When patients were dissatisfied with what had been done for them by one practitioner,

they were apt to go to another. He had lately come across a patient who had had five front teeth pivoted sixteen years ago, viz., two centrals, a lateral, and two canines, and they were still firm and useful. The pivoting was done in the old-fashioned way. Nuts and screws might sometimes be useful, but he thought that the insertion of the screw and tightening the nut must be a more unpleasant process than fitting a pin into the canal in the old way. He had seen many cases when with Mr. Cartwright of teeth which were shed in the ordinary course of nature with pivot crowns attached which had been in use for a great number of years, and others must have frequently met with similar cases. Seeing then that the results of the old method were generally so satisfactory, he failed to see the advantage of these later and more elaborate methods.

Mr. R. H. WOODHOUSE said he had lately removed a pivoted tooth which had been in use for twenty-three years; the crown was quite firm, but the root was absorbed. He thought this was a triumph for the old method.

The CHAIRMAN said he thoroughly agreed with what Mr. Turner had said as to the good results obtained by the old method of pivoting stumps with natural teeth. The pin was made of *hard* gold; a little floss silk was wound round it, it was then moistened with mastich varnish, and forced well up the canal. Teeth pivoted in this way lasted from twelve to thirty years, and the pin never came out—no one ever thought of its doing so. He felt bound to admit, however, that he had not been quite so successful with mineral teeth. He would now call upon Dr. Elliott to reply.

Dr. ELLIOTT said he had himself used the old method of pivoting, but he wished to advance with the times. The weak point of the method described by Mr. Turner was that the front edge of the tooth resting on the front of the stump gave a considerable amount of leverage, and as the result of any strain on the tooth the pivot was sometimes pulled out. Thus a patient of his who had a tooth pivoted in this way lost one crown and bent another.

In his lectures at the National Dental Hospital he had been in the habit of describing sixty different methods of pivoting, but he only used two in his own practice, viz., the one he had already described and the Flagg process. This latter method he considered a very good one, and quite as simple as the older method;

but though one of the best for front teeth, it was not as well adapted to bicuspid as the other. A plain plate tooth was soldered to a pin; this was passed up the nerve canal and packed all about with amalgam.

A vote of thanks was given to Dr. Elliott and to the other contributors of specimens and casual communications, and the Society then adjourned.

The Clinical Society.

AT a meeting of this Society, held on the 22nd ult., Mr. Thomas Bryant, F.R.C.S., President, in the chair. Mr. GEORGE LAWSON read the report of a case in which he had performed successfully œsophagotomy for the removal of a plate with three false teeth which had been accidentally swallowed and was impacted in the œsophagus.

The patient, a milkwoman, æt. 55, was admitted into Queen Ward, Middlesex Hospital, on January 14th, 1885, having about half an hour previously swallowed a vulcanite plate with three artificial teeth. On examination externally something hard could be felt in the œsophagus about the level of the cricoid cartilage by deep pressure with the fingers on the left side of the neck. Mr. Lawson endeavoured to remove the foreign body with a pair of long curved œsophagus forceps, but although he could feel the plate, yet he could not grasp it, so he decided at once to open the œsophagus. This he did through an incision about three inches in length along the lower prominent border of the sterno-mastoid muscle. The sterno-mastoid and the omo-hyoid with the carotid sheath were drawn outwards, whilst his colleague, Mr. Gould, drew the trachæa in the opposite direction, and with his fingers on the right side of the neck pressed the œsophagus towards the incision. The œsophagus was now visible, and the plate could be easily felt with the fingers. A vertical incision was then made in the œsophagus on to the plate, which was seized with a pair of forceps, but it was so firmly fixed into the walls of the œsophagus, by the clips which had held it to the neighbouring teeth, that it could not readily be extracted through the incision. Mr. Lawson then slightly enlarged the opening, and, having first divided the plate with a pair of bone forceps, removed it in two portions. In the operation one of the thyroid arteries was divided and bled

rather freely. No sutures were put into the œsophagus, as, owing to the wound in it being somewhat lacerated from the drawing through it such a sharp irregular body, Mr. Lawson thought that the parts would fall together better than he could adjust them. The superficial wound was then partially closed with sutures and covered with boracic lint charpie, over which was placed carbolic gauze and oilsilk. The patient was ordered to be fed with nutrient enemata and Slinger's nutrient meat suppositories. No food was to be taken by the mouth, but from time to time the lips and tongue might be sponged with ice-water to allay thirst.

On the following morning the wound was dressed, and there was found to be a very free discharge of saliva and mucus through the wound. The patient was fed solely by the bowel for the first four days, but feeling then very much exhausted, she was allowed to take in addition some of Brand's essence of meat, but a large portion of what was taken by the mouth escaped through the wound. On the 19th, the fifth day after the operation, some redness appeared around the wound, and this increased for two or three days. This was followed by an offensive discharge, with some sloughs of cellular tissue. On the 20th, the seventh day after the operation, as much of the fluid taken by the mouth continued to escape by the wound, Mr. Lawson introduced an œsophagus tube with a funnel-shaped extremity, which projected about six inches from the mouth. This was kept in, and through it the patient was regularly fed. The tube was worn until Feb. 8th, when, as the wound in the œsophagus was apparently closed, it was removed. During this period the tube was changed about every four or five days for the purpose of cleanliness. For about a fortnight after the patient ceased to wear the tube it was introduced four or five times during the twenty-four hours for administering food, as the external wound had not completely cicatrized. On Feb. 22nd the external wound was healed; the patient since then has been able to take her food as usual, and is now quite well.

Mr. LEDIARD, of Carlisle, contributed notes of a similar case. The patient was admitted into the Cumberland Infirmary with a tooth-plate in the œsophagus, which had become dislodged from the mouth during sleep twenty-four hours previously. There were pain on swallowing, and emphysema of the neck. Various attempts, prior and subsequently to admission, failed to remove the plate, which was believed to rest somewhere behind the thyroid cartilage. Œsophagotomy was performed, but nothing

found in the pharynx or cervical portion of the œsophagus ; but it was believed that, during manipulation on the table, the plate might have been unconsciously moved from its resting place, as the mucous membrane of the œsophagus behind the cricoid cartilage was somewhat bruised. The wound healed well, the plate was passed *per anum* on the nineteenth day, and the patient went home quite well, having been in hospital a month. The plate measured an inch and a half by three-quarters of an inch, and presented several sharp points and a hook at one end.

Mr. GODLEE, who had read the abstract of this case to the Society, remarked that Mr. Lediard had closed the œsophagus by two or three catgut ligatures. The patient had been first fed by nutrient enemata, and afterwards, for a time, through an œsophageal tube.

The PRESIDENT thought the question of passing a tube and leaving it in for some time was one to be considered. He thought that that modification would be an improvement. Mr. Lediard's case taught a lesson, namely, not to be in too great a hurry to interfere in such cases. He himself had had a case not long since in which a patient on the eighth day had passed a larger plate than that passed by Mr. Lediard's patient. But such considerations must not lead to dilatory surgery. If the case were recent, the œsophageal wound might be closed with catgut ligatures, and the patient fed with a soft elastic tube, retained in the gullet, as was done by Mr. Symonds in cases of cancer of the œsophagus.

MINOR NOTICES AND CRITICAL ABSTRACTS.

On the Existence of Masses of Epithelium round the Roots of Adult Teeth in a Normal State.*

By L. MALASSEZ.

THE origin of purely epithelial tumours in the body of the maxillary bones, far from all known epithelium, the resemblance between certain parts of these tumours and several of the epithelial productions which assist in or accompany the formation of teeth, the existence in the gums of adults in a normal condition of little cellular masses also resembling some of these productions—all

* Sur l'existence d'amas épithéliaux autour de la racine des dents chez l'homme adulte et à l'état normal (débris épithéliaux paradentaires). *Archives de la Physiologie*, February, 1885.

these facts led the author to think that epithelial debris of dentition must exist in the substance of the maxillary bones of the adult.

But this hypothesis, attractive and even probable though it seemed, required to be anatomically verified—and this is what I believe I have succeeded in doing. I have, in fact, discovered surrounding the roots of human adult teeth in a normal condition, little cellular masses, which, as we shall presently see, must justly be considered as epithelial remains of dentition, and as the origin of certain epithelial intra-maxillary new formations.

In order to render this demonstration clearer, I will first briefly review the various epithelial productions of dentition which are found in the foetus ; next, I will describe the cellular masses that I have discovered round the roots of teeth ; then in a second work, I will point out some of the epithelial tumours which I have had the opportunity of examining, and which appear to me to trace their origin from these said masses.

Epithelial productions of Dentition in the Foetus.

The human tooth results, as everyone knows, from two processes of a different nature : first, from a connective tissue process, which results in the formation of the dental bulb, and, successively, the dentine, the pulp, and the cementum ; second, from an epithelial process which brings about the formation of the enamel organ and, by natural consequence, of the enamel itself. This last, the only one which interests us at present, starts from the epithelium of the gum. At first it is nothing more than a sort of epithelial band thrust into the mucous membrane, but it soon gives origin, at the level of each future milk tooth, to a sort of bud which develops little by little, becomes pedunculated, and finally separates itself even from the epithelial band, at the same time capping the germ of the dentine. At first, the enamel bud has no particular characteristic, it resembles all embryonic epithelial new formations ; but in proportion as it develops, it gradually alters in its different parts, and at last produces the well known special epithelial forms which characterise the enamel organ ; such as the enamel-secreting cells, the cells of the intermediate layer, (stratum intermedium), and the pulp cells (stellate reticulum). Besides this epithelial process, quite a distinct series of other buds are produced at the same time, which start from the epithelium of the gum, from the epithelial band, from the pedicles, and from the external surfaces of the enamel organs. Amongst all these buds, a few only have a future use,

and these are destined to form the enamel organs of the permanent teeth ; all the rest remain in a state of buds, without any apparent use or function.

I need not now enter upon the study and history of all these phenomena ; I only wish to point out a certain number of particular points which I shall have to refer to in the course of this work, principally with reference to the general disposition and structure of the epithelial buds which accompany the enamel formations. I have studied them in human foetuses of two-and-a-half months, four-and-a-half months, five, and six months. Now, at these ages, these epithelial productions form, if classed according to their position, three principal groups ; a superficial surface close to the deep layer of the epithelium of the gum ; a deep one, corresponding to the exterior surface of the enamel organ, and one intermediate. In sections these groups are generally fairly distinct, sometimes even they are completely isolated, but very often too, they are in close union with each other, principally at the edge of the dental germs—an additional explanation of which fact is afforded by their development.

(1.) The epithelial ingrowths which proceed from the deep surface of the epithelium of the gum, differ in form and structure. Some are composed of epithelial cells of the malpighian type, the cells at the periphery are often cylindrical, like those of the deep layer of epidermis, the central ones are sometimes flattened and arranged in epidermic globes. These buds are generally club-shaped, resembling those that are met with in some cutaneous affections or in certain epitheliomata. Some, on the other hand, are like simple or branching lines, and are ordinarily made up of round or polyhedral cells without any typical characteristics. Sometimes, however, one finds some, the cells of which approach the malpighian or the cylindrical type. Amongst the latter, there are a few, the cells of which seem to be arranged in the form of an enclosure encircling a cavity more or less filled with round or polyhedral cells, here and there showing a sort of lumen or transparent centre, which gives them the appearance of tubes.

It is probably some of these epithelial productions—those of the malpighian type—that Serres has described under the name of “dental glands.” He says, in fact, that they are closed sacs, and that, when squeezed, nothing comes out of them, but that if a preliminary artificial opening be made, the pressure forces out a white matter of the consistency of wax and of a spiral shape. This

matter, according to him, would, in a normal state, come out by transudation, and in a new-born child, would serve to lubricate the gums and to facilitate thus the suction of milk ; later on they would secrete dental tartar.

(2.) The epithelial productions which are in the thick part of the gum, between the mucous membrane and the dental follicles, form together a sort of band which, in transverse sections, seems as broad as the follicles, and, in longitudinal sections, appears to stretch all along the edge of the gum. It is rather irregular in thickness and density, the cellular masses being more or less numerous, and with more or less space between them ; sometimes it is very close to the mucous membrane, sometimes it is close to the follicles. A certain number of these masses appear in sections to be independent of each other—perhaps they really are so ; but the greater number of them anastomose, so that we must consider them as forming all together a rather irregular epithelial network. It is only very exceptionally that one finds balls and club-shaped masses of pavement epithelium. The greater number of the masses are made up of the polyhedral epithelium, without any well-defined characteristic ; sometimes they are round, sometimes more or less lengthened out into single or branched lines ; sometimes they constitute thick irregular, and rather considerable masses. In some of these lines, the peripheral epithelial cells assume the cylindrical shape, whilst the central cells remain spherical or polyhedral ; there are some even which appear really tubular-shaped. Round these tubes the connective tissue lies sometimes in concentric layers, forming a kind of membranous envelope round them as round a gland duct.

This intermediate epithelial network communicates here and there with the epithelium of the gum by means of bands of polyhedral epithelium of varying lengths ; it is also in communication with the enamel organ. It evidently originates from the epithelium of the gum ; its position, its relations with this epithelium and with the enamel organ render it probable that it arises principally from the epithelial band which has given off buds, and has, perhaps, been stretched out and broken up by the surrounding tissues in the course of development. The young enamel organs and their buds most probably assist. At the same time as these changes of form are taking place, differentiations take place in parts, the cells taking on sometimes a squamous, and sometimes a columnar form.

(3.) The third group of epithelial productions includes the enamel organs and the buds which arise from them.

It is a long while since the enamel organs were first observed, but the growths which proceed from them have only been recently described. I am aware that Herissant has described and figured on the interior surface of the invagination which envelopes the crown of the coming tooth, some little vesicles which he supposed secreted the enamel. But what is the nature of these vesicles, the little vascular papillæ which jut out into the meshes of the surrounding epithelium, the epithelial buds themselves? It is difficult to say. Todd and Newman have, however, clearly distinguished the epithelial buds, and have compared them to glandular formations. Robin and Magitot have described them still more completely, and have shown their connection with the external epithelium of the enamel organ; lastly, Legros and Magitot have taken up this investigation again, and, at the same time, have given a good general description of all these epithelial formations.

The external epithelial layer of the enamel organ merits some attention. This does not always and everywhere form a continuous coating, as seems to be the general opinion. It is easy to observe in certain places, and this very distinctly in tangential sections, numerous gaps or holes which give it the appearance of an epithelial network. This network interlaces with the vascular network; so that, level with the holes of this layer—the meshes of the network—the vessels are in immediate relationship with the enamel pulp, and the connective tissue in continuity with the indefinite substance which separates the nucleated cells of the pulp. This disposition must be singularly favourable to the nutrition of the enamel cells, and it has, perhaps, contributed to the belief in the connective-tissue nature of the pulp.

If we examine the spaces between the meshes of this network, in the places where no external buds exist, we find that they are not very thick, that their component cells are, as a rule, more or less flattened and stretched out in the direction of the meshes, contiguous with each other, that their protoplasm is striated and thread-like, just as Ranvier has proved the enamel cells and many other cells to be. Then, deeper down, completing the chain between the cells of the meshes and those of the pulp, we find intermediate forms, cells still flattened, but scattered, and having processes or short *anastomosing* projections.

At the point where the external epithelium of the enamel organ is no longer a network but a continuous coating, the layer that it forms is usually thicker and composed of stratified cells, more or less flattened. The outer ones are contiguous at their edges, whilst the innermost are isolated and branched, transforming themselves more or less rapidly into pulp cells (stellate reticulum). As we draw near the point where the internal epithelium bends back to unite with the external layer, the cells close to this bend are still plainly columnar like the enamel cells, but farther away from it they speedily lose this character, become smaller, cubical, flattened, and at last resemble those we have just described.

The buds which arise from the external epithelium, both where it is continuous and where it is network, mostly consist of polyhedral cells without very definite characteristics. The deeper cells flatten out and gradually assume the appearance of those which form the external epithelium, while the cells at the free ends of the buds have a manifest tendency to assume the columnar form. These buds then resemble in nature the stratum intermedium, with which moreover a direct continuity and anastomosis may be demonstrated, particularly at the level of the projections from the follicle. We have not met with any in which the tubular form reappeared or which contained epidermic globules.

If, casting a glance over all these productions, we class them, no longer according to their positions, but according to the nature of their component cells we find that they divide up into definite histological groups, differing both in kind and in degree.

1. The first group comprises epithelial productions formed of rounded or polyhedral cells without any defined characteristic.

2. The second group would 'not differ from the first were it not for the tendency of the cells at the periphery to assume a cylindrical shape like the deeper cells of the malpighian layer: they have the same situation as the preceding ones.

3. In a third group the cells are still polyhedral, but they approach more nearly to the malpighian type and sometimes even are arranged in epidermic globules. These epithelial productions are very frequent in the gums, but are rare in the intermediate stratum. I have not succeeded in finding any among the buds which arise from the enamel organ.

4. In the same regions there are some which have a tubular look and which are formed by a single layer of cylindrical cells, although frequently showing polyhedral or rounded cells in what should be the mouth of the tube.

5. Lastly, we will place in a final group those buds which proceed from the external epithelium of the enamel organ ; in these we trace an uninterrupted chain of intermediate forms between the fundamental cylindrical cells, the polyhedral cells without any definite character, and the stellate cells of the enamel organ.

Thus we see that in proportion as we pass from the superficial to the deep parts, the epithelial productions tend to pass from the malpighian to the enamel forming type.

The application of this remark will appear presently.

Now if we regard all these epithelial products from the point of view of their functions and object, we observe that only a small number have any ultimate use, those namely that are to give rise to the enamel organs of the temporary, permanent, and supernumerary teeth. All the rest appear to serve no purpose, and must be considered as aberrant formations. They are, so to speak, the abortive efforts of dentition ; a souvenir of some far distant ancestral arrangement, or perhaps analogous to what nature shows us in the creation of beings. How many spermatozoids lost for one ovum fecundated, how many ova fecundated that come to nothing, how many individuals born that never reach maturity ; perhaps some such lavish expenditure of attempts is necessary for the forming of a tooth. Many dental germs may be born, but only those few mature that chance to be placed under conditions favouring development.

What eventually becomes of these various epithelial products ? those that have a function and those that are abortive ? We know that in the case of animals that have teeth coated with enamel and of continuous development, the incisors of rodents for instance, the enamel organ persists. We know also that in the case of those whose teeth are indefinitely renewed, for example certain fish, epithelial buds exist which constitute the epithelial germs of the successional teeth. What then happens in the case of man, the development and renewal of whose teeth are limited ?

According to Legros and Magitot "the enamel organ, when once its function is discharged, atrophies and disappears," and the same is the history of the epithelial lamina and the buds that arise from it ; these portions undergo, say they, "a gradual resorption which results in their complete disappearance before the development of the tooth is completed." Kolliker adopts a similar view : the enamel organ is destined to atrophy and disappear. He observes, however, that the foetal gum and that of the infant

at birth contains small nodules about the size of a millet seed, the so-called tartar glands of Serres: according to him these are epithelial nodules, "the remains of the embryonic enamel organ." Again, a few pages further on, after having once more asserted that the enamel organs disappear, he adds that "the atrophy of the remains of the enamel organ is not always immediately followed by their complete disappearance; a portion of these remains are transformed into rounded nodules of branched cells."

I have not followed through each period of life the various epithelial products of dentition, but the cellular masses that I have found in the adult scattered round the roots of the teeth present, as we shall presently see, a certain number of characteristics which authorise us, I think, in considering them to be the débris of some of the epithelial products that I have just described.

If this were so, they would not altogether disappear as we suppose; some would persist, and that not only in the case of those animals who are possessed of enamel-covered teeth of continuous growth, not only in the infant at birth, as Kolliker has already hinted, but even in the case of the adult.—(*Archives de la Physiologie.*)

(*To be concluded.*)

OBITUARY NOTICE.

James Moncrieff Arnott, F.R.S., F.R.C.S.

ON May 27th, at his residence in Sussex Gardens, Hyde Park, died Mr. James Moncrieff Arnott, F.R.S., aged 91 years. Although known personally, or even perhaps by repute, to but few dental practitioners, yet to him in a very great degree are they indebted for their present professional position, for the systematic education which is now compulsory, and therefore, for the social status which that education carries with it. For of those who had the power to act successfully in pressing forward an educational movement, he was the first to entertain the proposition that dental surgery requires for its effective practice special study and the attainment of special manipulative skill. Mr. Arnott being a member of the Council and of the Board of Examiners of the Royal College of Surgeons, and having passed the presidential chair, could speak with an authority which would command the attention of the Council upon any

question of professional education. And he did so speak in 1857 in proposing that the College should form a dental department; not however in the first instance with a definite result, but after awhile he gained over to his views Mr. Green and Mr. Lawrence, and soon after the Council itself. To give the power to carry the decision into effect a Royal Charter was necessary, and the Medical Act of 1857 being then before Parliament it was, if not absolutely necessary, yet highly desirable that permission should be given in the Act to the College to take such a Charter. The College left it to the dentists to get the needed clause inserted in the Medical Bill then in committee. A member of the Government engaged to do this, but at the last moment failed. The unexpected failure became known in the evening preceding the morning of the day on which it was necessary to give notice of the motion, and the solicitor of the College was called out of his bed by one of our own body at five o'clock in the morning to draw the needed clause,—the dental clause of the Medical Act, 1858,—while he waited. The solicitor was Mr. Charles Wilde whose death preceded Mr. Arnott's by two or three weeks only.

The charter was obtained in 1859, and under it six dental examiners were appointed; three in surgery, Mr. Green, Mr. Lawrence, Mr. Arnott, all now gone; and of the dental section, Mr. Bell and Mr. Rogers have passed away. In every proposal that related to the advancement of knowledge in our profession, Mr. Arnott was strongly interested, and when the means were within his reach took an active part in its development. He brought a motion respecting the registration of dentists before the Medical Council, upon which he represented the College of Surgeons, and a seconder to this motion volunteered, but failed at the very last moment, so that arrangements could not be made for a substitute. The question was indefinitely postponed, but the Dentists Act has grown from the seed of his planting. Mr. Arnott out-lived all his contemporaries, and his survival left him with friends much younger than himself, most of whom were known to him first as pupils, then as attached friends. The writer of this parting notice enjoyed the close friendship of its subject for near upon fifty years, and can take upon himself to say that all who were intimately acquainted with Mr. Arnott regarded him as an example worthy of the closest following, as a man with the strongest sense of honour, of integrity, of duty, and of the claims of friendship; one who could not stoop to meanness in any of its endless varieties

of form. Had his principles of action been less rigid, it is quite possible that his popularity as a practitioner would have been greater, but the beneficial influence upon the character of those to whom he gave instruction would have been less. Measured by the standard of money he was surpassed by many; by the standard of worth he could only be equalled.

Mr. Arnott was a son of the late Mr. Robert Arnott, of Chapel, Fifeshire, and was born in 1794. He was educated at the High School and University of Edinburgh, and there began his study of the profession, which he subsequently followed in London, Vienna, and Paris. He was for many years surgeon to Middlesex Hospital and University College Hospital, and also Professor of Surgery in King's College and University College, London. In 1840, Mr. Arnott was nominated one of the Council of the Royal College of Surgeons; he was elected a Fellow in 1843, and later on became a member of the Court of Examiners of that body, of which he had twice been elected to the presidency. In 1860, he was elected representative of the College in the General Council of Medical Education and Registration of the United Kingdom. Mr. Arnott held the appointments of Surgeon in Ordinary to the late Prince Consort and Surgeon Extraordinary to the Queen.

ANNOTATIONS.

THE Dental Department of Owen's College, Manchester, was opened on the 11th ult., when Mr. Matheson delivered the very suggestive address which will be found at p. 347 of this number. The lecturing staff consists of Mr. Leonard Matheson (Dental Surgery), Mr. Joseph Collier (Dental Anatomy and Physiology), Mr. Thos. Tanner (Dental Mechanics), and Dr. Burghardt (Dental Metallurgy). With so formidable a rival at their gates, the staff and Committee of the Liverpool Hospital would surely do well to settle their differences, the continuance of which cannot fail to cause serious injury to their school.

ALTHOUGH no business of any great importance to the dental profession was transacted by the General Medical Council during its recent session, still there were a few matters which we have thought worthy of notice, a short report of which will be found elsewhere in this number.

A COMPARISON of the number of candidates passed and rejected by the different licensing bodies during last year, and also by the same bodies in previous years, is not without interest. On reference to the tables it will be seen that the Glasgow Faculty "plucked" last year 50 per cent. of their candidates, but as those rejected were all *sine curriculo* men the results are not so serious as they appear at first sight. The proportion of rejections at the English College of Surgeons, which was 25 per cent. in 1883, was over 44 per cent. last year, whilst the Irish College, which in 1883 rejected only 13½ per cent. of its *sine curriculo* applicants, last year "referred" 20 per cent.,—the total number examined being the same in both years. This classing of all the Irish candidates as "sine curriculo" is, by the way, somewhat misleading, considering the fact that a good many of them are men who have gone through the regular course of study, but who, not being considered by their teachers to be up to the English standard, have been sent to try their luck at Dublin, very often with success. We trust, however, that this will be the last return in which the anomaly just referred to will occur.

THE fact that the Balance Sheet of the Dental Registration Fund still shows a deficit, in spite of the readjustment which Dr. Storrar was instrumental in obtaining during the previous session, will perhaps appear discouraging to some of our readers. It must be remembered, however, that the new arrangement only came into force in the course of last year, and could not be made retrospective. It is only this year, therefore, that the full benefit of the change will be seen, and we hope that the next Financial Statement will be more favourable than its predecessors.

WITH reference to the Werner business little need be said. It will be remembered that this individual succeeded in obtaining a large quantity of miscellaneous property, ranging from gold watches and plate down to puppies and poultry, from advertisers in a paper called the "Bazaar," paying for the articles with worthless cheques, and signing himself "M.D.," which he stated at his trial stood for "Mechanical Dentist." That so simple a case, supported by a formal certificate of conviction from the proper authority, should need to be referred to the Council's Solicitor, and then to a Committee, before it could be dealt with by the Council itself, shows an excess of formality in the Act which we hope will be rectified on the first opportunity.

THE application from the University of Pennsylvania opens up a more important question. It is possible that some of our American contemporaries may choose to see nothing but "protection" in the decision arrived at, and attribute it, as they have done before, to a dread of competition. Were the Medical Council composed of dental practitioners these assertions would be at all events more plausible, but fortunately as regards this matter, unfortunately in some other respects, the Council does not contain a single member even remotely connected with dentistry, nor has its conduct on other occasions afforded any grounds for this assertion of partiality.

A REFERENCE to the Calendar of the University will at once suffice to convince any unbiassed mind that the Council could not do otherwise than refuse the application, unless it was prepared to modify the curriculum it had itself sanctioned, so as to make it accord with that of the American University. Instead of our four years course, the candidate for the degree of D.D.S. Pennsylvania, is only called upon to give evidence of having attended two winter sessions of seven months, (October 1st, May 1st), and only one of these need necessarily be passed at the University. Our workroom apprenticeship, also, is replaced by a six months practical course in the College laboratory.

THAT the requirements of our Medical Council are not over strict is clear from an examination of the "Announcement," or Calendar, of the University of Michigan, the degrees of which are recognised by the Council. It is, indeed, one of the few American schools which require the student in dentistry to pass an examination in general knowledge before commencing his professional studies; but we find that although *three* years of study are *recommended* to the candidate for the degree of D.D.S., *two* are accepted, and in the case of a graduate of medicine or surgery *one* year. The course of study *on paper*, includes the following subjects:—Anatomy, Physiology, Dissections, Chemistry (General and Analytical), Theory and Practice of Dentistry, Prosthetic Dentistry, Materia Medica, Histology, Pathology, Principles of Surgery (General and Oral), Clinical Dentistry, Therapeutics, and Diseases of Women and Children! American students must be very different from those we have to deal with in England if they succeed in getting anything more than a very

confused and useless smattering of most of these subjects in the course of two years' study.

THE May number of the *Nineteenth Century* contains an article by Sir Henry Thompson on "Diet in relation to Age and Activity," which, though highly interesting and suggestive, as this author's productions usually are, illustrates at the same time how difficult it is, even for a master of his subject, gifted with full power of expression, to write an essay on a physiological topic which shall be comprehensible to the general reader. The main purport of Sir Henry's argument is to combat the common prejudice of Englishmen of all ages in favour of a heavy diet, comprising much meat, and accompanied by a considerable amount of alcoholic drink. No doubt many suffer from the effects of such a dietary as Sir Henry condemns, but it is equally certain that a good many would be seriously lowered in health by a continuance of such a regimen as he recommends, viz., vegetables and fish, with little meat and little alcohol, or none at all.

THE perusal of such an article as this by the general public is, we believe, calculated to do at least as much harm as good, and it is to be regretted that Sir Henry did not either choose a medical rather than a lay journal for the promulgation of his views, or else so elaborate and extend his arguments as to render them less liable to misconception by the casual reader. In dealing with the question of mastication he seems to us especially to fail in his attempt at rapid explanatory generalisation. Here his reasoning may be briefly stated as follows :—Much meat is bad for the aged, efficient mastication enables the aged to eat with enjoyment much meat, therefore it is better that old people should remain toothless, or employ artificial teeth only for the purposes of improving their appearance and articulation ! But meat, though perhaps the chief, is not the only food which needs proper mastication, and we believe general experience warrants us in saying that even were the diet such as Sir Henry recommends, the assistance of efficient means of mastication would be of great importance, and its absence extremely detrimental to all but those exceptional individuals endowed with a vigorous digestion lasting unimpaired to the end of life.

WITH reference to the cases of teeth-swallowing which are con-

stantly being reported in the medical journals, we would once more call attention to the importance of a proper technical description of the plate being given. In most cases we are told simply that the patient swallowed "a small plate," or a plate with two teeth or three teeth. No doubt in a large number of instances the patient is to blame for wearing a denture which no longer fits properly, or of which some of the attachments are broken. Still it would be very desirable to ascertain what class of dentures are the most dangerous, and if the medical practitioners who meet with such cases would get some dental friend to furnish a clear description of the plate, some very valuable statistics might soon be accumulated, and the experience thus gained would probably enable us to guard more effectually against the occurrence of these accidents.

AT a recent meeting of the Pathological Society a curious case was brought forward by Dr. Dickinson. A lady, 60 years of age, consulted him on account of the discharge of a violet coloured fluid from her mouth. On examination it was found that the right side of her tongue was of a blue colour, and that she had some false teeth on that side of the mouth. Finally a fragment of one of the aniline blue pencils in common use was discovered impacted between two of these false teeth, and the mystery was at once explained; but it seems to have required no less than three doctors to get to the bottom of this remarkable "mare's nest."

WE regret to hear of the death, on the 18th ult., of Mr. William Routledge, of Newcastle, a member of our Association. Mr. Routledge was only fifty-four years of age, but had been suffering for some time from chronic heart disease, which at last proved fatal.

TO CORRESPONDENTS:—

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &c.

HOSPITALS.	DENTAL SURGEONS.	ASSIST. DENTAL SURGEONS.	DAY AND HOUR OF ATTENDANCE.	ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewbank ; Mr. Paterson ...	Mr. Mackrell; Mr. Ackery ...	Tuesday and Friday, 9 a.m. ...	Mr. Mills.
Charing Cross ...	Mr. Fairbank ...	... ..	Monday, Wednesday & Friday, 9 a.m.
St. George's ...	Mr. Winterbottom ...	... ..	Tuesday, 9 a.m....
Guy's ...	Mr. Henry Moon ...	... ..	Tuesday and Thursday, 12.30 noon ...
King's College ...	Mr. S. H. Cartwright ...	... ..	Tuesday and Friday, 10 a.m. ...
The London ...	Mr. Ashley Barrett ...	... ..	Tuesday, 9 a.m... ..
St. Mary's ...	Mr. Howard Hayward... ..	... ..	Wednesday and Saturday, 9.30 a.m....
Middlesex ...	Mr. Bennett ...	... ..	—
St. Thomas's ...	Mr. Ranger ..	Mr. C. Rogers ...	Tuesday,	
University College...	Mr. Hutchinson...	Mr. Chas. Truman ...	Wednesday, 9.30 a.m....	
Westminster ...	Dr. Walker	Wednesday and Saturday, 9.15 a.m. ...	Mr. Bailey. Mr. Bird. Mr. Mills. Mr. Braine. Mr. Bird. Mr. Bailey. Mr. Glassington. Mr. Tyrrell. Mr. Hewitt. Dr. Winslow. Mr. Tyrrell. Dr. Winslow.
London Dental ...	Mr. David Hepburn ...	Mr. Smale ...	Monday, 9 a.m....	
" "	Mr. R. H. Woodhouse...	Mr. Lawrence Read ...	Tuesday, 9 a.m....	
" "	Mr. Gregson ...	Mr. Arthur S. Underwood ...	Wednesday, 9 a.m.	
" "	Mr. Hutchinson...	Mr. Claude Rogers ...	Thursday, 9 a.m.	
" "	Mr. Henry Moon ...	Mr. George Parkinson ...	Friday, 9 a.m. ...	
" "	Mr. F. Canton ...	Mr. Storer Bennett ...	Saturday, 9 a.m.	
National Dental ...	Mr. Henri Weiss ...	Mr. Truman ...	Monday, 9 a.m....	
" "	Mr. Alfred Smith ...	Mr. Willoughby Weiss ...	Tuesday, 9 a.m....	
" "	Mr. G. J. Williams ...	Mr. Giles Bradshaw ...	Wednesday, 9 a.m.	
" "	Mr. A. F. Canton ...	Mr. Marcus Davis ...	Thursday, 9 a.m.	
" "	Mr. T. Gaddes ...	Mr. H. G. Read ...	Friday, 9 a.m. ...	
" "	Mr. Harry Rose...	Mr. G. D. Curnock ...	Saturday, 9 a.m.	
" "		Mr. W. R. Humby ...		

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, , at 5.30 p.m.; Committee of Management, , at 5.30 p.m.; Medical Committee, 5.30 p.m.
British Dental Association.—Publishing Committee, June 25th, at 5.30 p.m.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 7.

JULY 15, 1885.

VOL. VI.

Dental Education in America.

WE are sorry to find from a letter which we publish in this number that the remarks which we made last month with reference to the dental curriculum of the University of Michigan were capable of being misunderstood. Had the writer been a graduate of the University of Pennsylvania, instead of that of Michigan, his letter would have had more point; as it is, it affords clear evidence that he had not read our remarks very carefully. He speaks, for instance, of a fact which we must regret not to have known when we penned the Annotation. This was, however, written with the latest prospectuses of both schools lying before us, and when, in reference to Michigan, we spoke of two "years" of study being required, we meant the ordinary academical year of nine months, attendance during the winter session only being required at the University of Pennsylvania. But although we do not consider that the letter was called

for, we readily publish it, since it affords us an opportunity of expressing our opinions on this subject more fully than it was possible to do in a brief Annotation.

It will be remembered that in the course of the recent session of the General Medical Council a letter was read which had been addressed to the Council by the Secretary of the University of Pennsylvania requesting that the dental degrees granted by his university might be recognised as entitling the holder to the privileges of registration in England, in the same way as the degrees of Harvard and Michigan Universities were already recognised. The Council decided that it could see no reason for altering its previous decision that the degrees of the University of Pennsylvania could not be admitted to the English Dental Register, and our comments were intended to show that in arriving at this decision the Medical Council could not be accused of adhering to some rigid standard of its own, to which a foreign university could not be expected to accommodate itself, but had evidently taken into consideration all the circumstances of each case, since in that of the Michigan University it had recognized as practically equivalent to our own a curriculum which differs from it in almost every particular.

The justice of the decision of the Medical Council with regard to the degrees of Harvard and Michigan Universities has never been disputed by us, but we may at once state that information has recently reached us, and evidently the Medical Council also, with reference to the last-named institution, from sources which we believe to be thoroughly trustworthy, which gave occasion for the note of warning to which Dr. Storrar gave utterance. We are informed that there is a party connected with the University of Michigan, which would be glad to see its degrees made more easy of acquisition, and that rumours of this having

been bruited about amongst the students, the matter was at last publicly referred to by Dr. Taft, though not with approval. He said, indeed, as we are told, that so long as his connection with the University continued, his influence would be exerted to prevent any lowering of the value of its degrees, and we have full confidence not only in his sincerity, but in his ability to prevent any such changes as were suggested. But Dr. Taft is no longer young, and should he find it necessary to retire, it is quite possible that the reins of government might fall into less trustworthy, or perhaps, only into weaker hands, and that some changes might be attempted in the direction indicated.

We are quite aware that the Michigan University is a State institution, and that no changes can be made in its laws without the consent of the State Legislature. But in matters of this kind Legislative bodies are very apt to be guided by those in whose special knowledge and experience they think they can place confidence, so that, although this connection may serve as a check to precipitate action, it would probably not form a serious obstacle to any changes which were supported by a majority of the University faculty. Nor is it necessary to impute mercenary motives to the innovators; the pleasure of seeing a long list of graduates would be a sufficient reward to many a partisan of the new scheme. If, then, the connection of the University with the State were the only safeguard against change, we should not consider the outlook very reassuring. But happily it is not so.

Not long ago the teaching in the American dental schools was, in many respects, a model to the world, but their examinations and mode of conferring degrees have never been altogether satisfactory, and there can be no doubt that of late years, partly owing to the keen competition between the numerous colleges and licensing bodies, the average

standard of qualification, if it has not actually retrograded, has certainly not kept pace with the advances made in other countries. The leaders of the profession in America have at length become keenly alive to this fact and under the able generalship of Dr. Barrett, the editor of the *Independent Practitioner*, have already been signally successful in correcting the lax discipline of some of the colleges. We are disposed, therefore, to place far more reliance on the vigilance and well-directed action of this party of progress than on any Legislative enactments. These gentlemen have already done something in the way of lengthening and strengthening the curricula with which some of the colleges have hitherto been content, but more remains to be done in this direction. It is well known, especially to those who have had to do with our own system of competitive examinations, that a man may, by forced application, pick up an astonishing amount of scientific or other information in a very short time, but it is also a well-known fact that knowledge so obtained is as rapidly forgotten. And it can only be by a process closely allied to that known amongst ourselves as "cramming," that a student fresh from school can in one, or even two years pick up a knowledge of the long list of subjects mentioned in our Annotation last month.

It may be said that American practitioners are, as a rule, skilful operators and handicraftsmen, but that, with some few notable exceptions, they are sadly wanting in that general scientific knowledge which a professional man is, at the present day, expected to possess. And this must continue to be the case so long as American colleges expect, or appear to expect, their students to perform an almost impossible task. Let them remedy this, as it seems to us, obvious mistake, and we shall hear less about "bugs" and other unscientific vulgarities, and the dental world will

be spared in the future such an exhibition of ignorance as was exposed in the course of the discussion which took place when Dr. Barrett brought the subject of Dr. Miller's researches into the pathology of caries before the last meeting of the American Dental Association.

ASSOCIATION INTELLIGENCE.

The Annual General Meeting at Cambridge.

THE Annual General Meeting of the Association will take place at Cambridge on Thursday, Friday, and Saturday, August 27th, 28th, and 29th, under the Presidentship of Mr. R. White, of Norwich. The following is a sketch of the probable order of business, in which, however, it may possibly be found necessary to make a few alterations. A full programme of all the arrangements will be published in our August number.

Business will commence at 9 a.m. on Thursday, August 27th, with a meeting of the Representative Board in the Committee Room of the Union Society.

At 11 a.m., a General Meeting will be held in the Debating Hall of the Union, when Dr. John Smith will deliver his Valedictory, and Mr. R. White, the new President, will follow with his Inaugural Address, after which the usual business of the Association—reception of reports from Secretary and Treasurer, election of members of the Representative Board, &c.—will be transacted.

Clinics and Demonstrations will be given in the University Museum of Zoology and Comparative Anatomy, and the usual collection of specimens and exhibition of dental appliances will be open for inspection.

At 8.30 p.m., there will be a *Conversazione* and Reception of members and friends by the President and Council of the Eastern Counties Branch at St. Peter's College.

On Friday the General Meeting will be continued at 10 a.m. The following papers have been promised:—on "The Dental Specimens in the Cambridge Museums," by Dr. Hans Gadow; "Bridge-work on Balkwill's Method," by Mr. R. H. Mcredy, D.D.S.; on "Antiseptics in General Surgery," by Mr. Frank Harrison, M.R.C.S.; on "The Extraction of the First Permanent Molars," by Mr. R. W. White, M.R.C.S.; "Are Teeth necessary

after Fifty years of Age?" by Mr. S. J. Hutchinson, M.R.C.S., a reply to Sir Henry Thompson's article in the *Nineteenth Century*; on "Section cutting of Hard Tissues, with special relation to the Teeth," by Mr. T. Charters White, M.R.C.S.; on "The Hopes and Fears of Dentistry," by Mr. Oakley Coles, L.D.S.; "Capping *versus* the Extraction of Pulps," by Dr. J. Walker; on "The Existence of Electrical Currents in the Mouth," by Geo. Cunningham, D.M.D.; on "Continuous Gum Facings," by Mr. A. B. Verrier, and papers by Mr. C. S. Tomes and Mr. A. Underwood, of which we have not yet received the titles.

The accommodation provided for the Clinics appears to be the best we have yet had. Demonstrations in gold fillings have been promised by Dr. St. George Elliott, Dr. Claud Rogers, Dr. G. W. Field, Mr. Walter Browne, and Mr. F. H. Balkwill; Mr. Newland Pedley, F.R.C.S., will show the application of Hammond's wire splint for fractured jaws; Mr. George Brunton will demonstrate the Herbst method of filling, with his own matrix and clamp; Mr. Alfred Jones, jun., the attachment of a Ferrule Pivot; Mr. C. M. Cunningham, the attachment of a gold crown and a demonstration on cast metal plates.

At 4 p.m. a garden party will be given by the President (Mr. Richard White), in the grounds of Downing College, and at 7 p.m. the Annual Dinner will be held in the Hall of Caius College.

The time of meeting of the subscribers to the Benevolent Fund has not yet been arranged, but it will be announced in the official programme.

The arrangements on Saturday will depend upon the progress made with the Association business on Thursday and Friday.

Mr. R. W. White, the President of the Eastern Counties Branch, proposes to give an entertainment, but it is thought that possibly members may prefer to form parties and visit some of the many interesting sights in and around Cambridge. It is also in contemplation to form a water party, if a sufficient number of names be sent in in time to make the necessary arrangements. At all events it will be evident that ample materials have been provided for a very pleasant and instructive meeting.

Meeting of the Representative Board.

A MEETING of the Business Committee will take place on Thursday, the 23rd inst., at 5.30 p.m.

The Representative Board will meet on Saturday, August 8th, at 3 p.m.

The Art Exhibition and Dental Loan Museum at Cambridge.

ALL objects for the Art Exhibition by members of the profession (see JOURNAL for March, p. 189), as well as models and specimens for the Dental Museum, should be addressed to the Hon. Local Secs. (Messrs. Cunningham and Rhodes) at the New University Museums, Cambridge, and must be sent in *not later than August 20th*. These collections will be arranged in adjoining rooms. As regards the former, the responses to Mr. Oakley Coles' proposition have been very satisfactory. For the latter the Committee would be especially glad to receive models bearing on the subject of Mr. Wentworth White's paper on "The Extraction of the First Permanent Molars."

Western Branch.

THE Seventh Annual Meeting will be held at the rooms of the "Woolhope Naturalist Field Club" Free Library, Hereford, on Monday, 24th August, under the presidentship of Mr. G. C. McAdam, L.D.S.Eng., of Hereford. The following will be the order of proceedings :—

9.30 a.m.—Meeting of Council.

10.30.—General meeting of members for business purposes, President's Address, reading and discussion of papers.

2 p.m.—Adjournment for luncheon.

3 p.m.—Reading and discussion of papers resumed.

Demonstrations will also be given, and there will be an exhibition of dental appliances.

7 p.m.—Dinner at the Green Dragon Hotel. Tickets 6s. 6d. each. Members intending to be present are requested to make early application to Mr. McAdam, King Street, Hereford.

Eastern Counties Branch.

THE annual meeting of this Branch was held at the Swan Hotel, Bedford, on Wednesday the 1st inst., Mr. Alfred Jones, sen., of Cambridge, President, in the chair. Amongst those present were Messrs. R. Wentworth White, of Norwich, President-elect; W. A. Rhodes (Hon. Sec.) and George Cunningham, of Cambridge; Frank Hall, of Hertford; W. Payling, of Peterborough; James

Parkinson, F. Canton, and J. S. Turner, of London ; Alex. Kirby, of Bedford ; H. W. Tracy, of Bury St. Edmunds ; J. Fenn Cole, of Ipswich, and others.

The PRESIDENT having taken the chair, the minutes of the last meeting, held at Cambridge, were read and confirmed.

The SECRETARY then read the following report :

Mr. PRESIDENT and GENTLEMEN.—We meet to-day to celebrate the fourth anniversary of this society since its formation as the Eastern Counties Dental Association. Our last meeting at Cambridge was a great success, and will long be remembered by those present at it for its practical value and for the agreeable social intercourse which it promoted. It is only to be regretted that the President, owing to a bereavement in his family, was not able to take a more active part in the business of the meeting. The Annual Meeting of the British Dental Association, at Edinburgh, was a most successful one, and was much enjoyed by those who were able to participate in its business and its pleasures.

During the past year we have elected three new members to this Society, which for this district shows a steady progress. The council have to regret the resignation of Mr. Stringfield, this Association's first hon. sec., one of its pioneers, and one who contributed in so great a degree to establish it on a firm basis. During the past year the parent Society has undertaken some prosecutions under the Dentists Act, Mr. Canton and Mr. Macleod being the nominal prosecutors, which have fortunately been attended with success.

It will be already well-known to you that at the Edinburgh meeting it was decided to hold the Annual General Meeting, of 1885, at Cambridge. A letter of invitation was sent from the practitioners of Cambridge, through the medium of Dr. Cunningham, inviting the parent Society to make that town their place of meeting in 1885. The Executive accepted the invitation, and at the General Meeting, on the proposition of Sir Edwin Saunders, seconded by Mr. Woodhouse, it was unanimously resolved that Cambridge should be the place of meeting for the following year.

All members of this Association will feel gratified that its first President has been chosen to preside over the meeting at Cambridge, and will join in congratulating him and his son, who will at the same time be President of our Branch, on the unique circumstances under which they hold two of the highest positions it is in the power of the dental profession to bestow. Gentlemen,

you have responded liberally to the appeal for funds which has been made to you for the purpose of defraying the cost of the coming meeting, and we already have evidence that active co-operation will not be wanting to make the gathering at Cambridge worthy of its predecessors, and of the Eastern Counties Branch of the British Dental Association.

The Treasurer also presented his report showing a satisfactory balance in hand.

The President read a list of those who had promised subscriptions to the Guarantee Fund, in connection with the General Meeting of the Association at Cambridge, the amount promised being £140. At the suggestion of Mr. R. W. White it was agreed to collect the money before the meeting and bank it in the names of the Local Committee.

The PRESIDENT announced that the Council recommended Lincoln as the place of meeting for 1886, and asked whether any one had any other suggestion to make.

Mr. PAYLING asked whether Northampton had been thought of.

Dr. CUNNINGHAM said Northampton had been mentioned, but he thought it would be better to leave it for the following year. He proposed that the Branch meet at Lincoln in 1886.

Mr. FRANK HALL seconded the motion and it was agreed to.

Some discussion followed with regard to the President-elect, but finally this was left for the consideration of the Council.

The ballot was then taken for three members of the Council, the retiring members being Messrs. Cunningham, Marsh, and Stringfield. Messrs. Cunningham, Littleboy, and Payling, were elected.

Mr. R. W. WHITE brought forward the Council's report with regard to the revision of the bye-laws.

On the motion of Dr. Cunningham, seconded by Mr. Hall, the revised bye-laws were adopted.

The President, Treasurer, and Hon. Sec. were appointed a Local Committee to co-operate with the Managing Committee of the Benevolent Fund.

Dr. CUNNINGHAM brought up the report of the Local Committee with respect to the General Meeting of the Association at Cambridge. The Committee had held several meetings and had drawn up various suggestions. They had held satisfactory interviews with the Vice-Chancellor and the municipal authorities of

Cambridge. The University would afford the Association every facility, and most of the meetings would be held in University buildings. Unfortunately the meeting would take place in the middle of the long vacation, when everybody who could get away from the town did so ; the Committee had, however, induced some representatives of the University and town to postpone their departure until after the meeting. The response to the call for papers had been of a very gratifying kind, as would be seen from the provisional programme which had been prepared. The Association would meet for three days, and he thought it would be found that there was ample to occupy the time fully.

Previous to the Edinburgh meeting last year, Mr. Macleod had sent out about five hundred post-cards asking a series of questions, as to whether members would attend the meeting and whether they would take part in the various entertainments, &c. But of these five hundred post-cards only about a hundred were returned. This was not courteous. Such an enquiry should surely have been replied to, if only to enable the Local Committee to make the necessary arrangements. In the case of the meeting this year at Cambridge, he should advise that provision should be made only for those who did send replies.

Dr. Cunningham then read the draft programme of business for the three days and some conversation ensued, the opinion generally expressed being that the programme was a very good one.

Mr. ALFRED JONES then proceeded to deliver his valedictory address as follows :—

GENTLEMEN.—The time has now arrived for me to quit this chair, to make way for a gentleman in every way better qualified to preside over you. But our incoming president needs no words of commendation from me. We all feel that we have but to secure a succession of such men as he for our presidents, and the welfare of our Society is assured.

I am sorry that I have not been able to do as much for the Society during my term of office as I could have wished. Circumstances beyond my control prevented me last year from enjoying, as I had hoped to do, the pleasure of your company. Allow me to take this opportunity of thanking you for the kind expressions of condolence, which I have received in my trouble and bereavement,

Gentlemen, my year of office has not been marked by any

great events in our Society. The number of members is about the same, and this year, I am happy to say, death has not removed any well-known and valued friends from our ranks.

In my previous address, I referred to my inability to speak as a dentist of the present day, owing to the fact of my having been out of practice for some time. I feel that I am now left still further behind. Still, I have read of no startling discoveries. The chief perhaps that has been made, is that of the local anæsthetic cocaine—which, although of immense value to the general surgeon, seems at present of no great service to the dentist.

On appearing before you to-day, perhaps for the last time in the capacity of a dentist, I cannot help looking back at the past, as dentistry has probably made greater strides during my career than it ever will again in a like period.

In surgical work, the improvements in material have not been so great as in the mechanical department; but the methods of using the materials, and the instruments employed have been so greatly improved upon, that it has made operating a pleasure, instead of an unsatisfactory and laborious toil.

Extracting is now much more agreeable to the patient than it was before anæsthetics were available; and I am sure the public at large must be ever grateful to the dental profession for the introduction of the two chief anæsthetics.

The character of mechanical work has entirely changed, greatly to the comfort of the manipulator. The laborious task of "letting down" bone plates, mounted with natural teeth, has been entirely superseded. I consider that mineral teeth are the greatest improvement in dentistry, and these with vulcanite and celluloid, have all come into use during my career. But I am sorry to say I do not consider that the workmen themselves are keeping pace with the improved material. I would urge you to give your fullest attention to the best form of mechanical work, namely, gold plates and tube-teeth, which seem to be gradually becoming a thing of the past, for I am sure that for durability, use, and the comfort of the patient in many cases, they are not to be equalled.

In conclusion, I beg to thank you for the kind forbearance and consideration you have shown to my short-comings, and the indulgence granted me on every occasion. I assure you I have the welfare of the profession at heart, and shall always have

pleasure in lending a helping hand, or doing anything in my power to promote the welfare of this Society.

Mr. R. W. WHITE then took the chair. He said he was very much obliged to the members present for the kind way in which they had received him, and for the kind words of their late President respecting him. As a good deal of time had been spent in discussing the draft programme which had been drawn up for the Cambridge meeting, he would not offer the short paper which he had intended to read. He hoped that he might be of some service during his year of office ; he would certainly endeavour to do what he could to further the advancement of the Association and of the Branch.

Dr. CUNNINGHAM proposed a vote of thanks to the retiring President. He had been associated with Mr. Alfred Jones in various capacities during his connection with the Branch, and had found him a most able colleague, and one who exercised a very beneficial influence in all their deliberations. Although Mr. Jones had ceased to be a practitioner, he trusted that he might long continue to be an ornament to the Society.

Mr. RHODES seconded the vote, which was heartily applauded.

Mr. JONES briefly returned thanks, assuring the members that in all that he had done, he had the good of the Society at heart, and he considered that the friendships he had made were quite a sufficient reward for his services.

THE DINNER.

The members present, reinforced by several visitors, afterwards dined together, Mr. R. Wentworth White in the chair.

After dinner the PRESIDENT gave "The Queen and Royal Family," and then proposed "The Odontological Society," which he considered had the right of precedence as being the precursor of all the organisations which now existed for the benefit of the dental profession. He coupled with the toast the name of Mr. Jas. Parkinson, the Treasurer of the Society.

Mr. Parkinson having replied, the PRESIDENT proposed "The British Dental Association," coupled with the name of Mr. J. S. Turner.

Mr. TURNER said it was certainly true that the Odontological Society was the parent of the present state of things, for the leading members of that Society were the men who took a promi-

ment part in getting the English College of Surgeons to institute the examination for the dental diploma from which the passing of the Dentists Act and the establishment of Dental Registration followed as natural consequences. But it must be remembered that an Act of Parliament would not operate of its own accord. It was not sufficient, therefore, to have obtained an Act ; if the profession wished to obtain any benefit from it, its members must band themselves together for that purpose. As yet only a small proportion of those who derived benefit from the Act had done so, but they must go on and be prepared to make some personal sacrifices for the common good, with the conviction that these would in course of time be more widely appreciated. The object of members should be to show themselves more and more worthy of the public confidence. The coming meeting at Cambridge would demonstrate that there was a considerable amount of vitality amongst them. Papers would be read and discussions would take place which would bear testimony to the education in their ranks, and they would be able to show the public that the dental profession was entitled to command its respect and confidence.

The toast of "The Dental Benevolent Fund" followed, to which Mr. CANTON replied. He said it was true that a Dental Benevolent Fund existed, but it was also true that it was not supported as it deserved to be. He hoped it would be taken up more generally and liberally than had been the case hitherto. Even as it was the Fund was doing much good ; indeed he was astonished to learn from Mr. Oakley Coles the amount of good it was doing, considering the very small amount at its disposal.

The PRESIDENT then gave "The Eastern Counties Branch."

Dr. CUNNINGHAM said, in reply, that the Eastern Counties Branch was in a peculiar position, inasmuch as its geographical position and other circumstances were not favourable to very rapid progress. At the same time whilst it numbered amongst its members men like their present and past presidents, it made up in energy what it lacked in numbers, and this would be shown at the Cambridge meeting. With a capital guarantee fund, the assistance of Mr. Rhodes, as Secretary, and an able Local Committee, they would endeavour to "beat record" on that occasion.

Mr. FRANK HALL next proposed the health of the President, and thanked him, as well as Mr. White, sen., for the assistance they had rendered to the Eastern Counties Branch.

The PRESIDENT, in returning thanks, said he sincerely hoped

the Cambridge Meeting would be a great success. The old academic town would, no doubt, attract many, and with the prospect of excellent papers and pleasant entertainments, the result could scarcely fail to be as he hoped. He was sorry that the limited time prevented a longer list of toasts. He regretted exceedingly that Mr. Kirby, sen., was unable to be present through illness. They had come to Bedford in the hope of getting recruits, and they had enrolled two. He hoped to meet them all again at Cambridge in August, and at Lincoln next year.

Mr. A. JONES proposed the health of the Secretary and Treasurer of the Branch whom he warmly complimented on their tact and zeal.

Mr. W. A. RHODES said he had hitherto served a sort of apprenticeship in his office, and he hoped the experience he had gained would be useful in connection with the next meeting of the Branch at Lincoln. He wished to take the opportunity of reminding those present that in the scattered district over which their Branch extended it was necessary that members should use their personal influence in order to obtain additional recruits. It was not much use for the Secretary to write letters to men to whom he was an entire stranger; the personal influence of members was much more likely to be successful in adding to their strength.

The proceedings then terminated.

ORIGINAL COMMUNICATIONS.

The Range of Dental Influence.

By P. CROMBIE, L.D.S.Edin., Aberdeen.*

THE teeth being so distinctly set apart by themselves and so easily removable whole, and exclusively from the other constituents of the body, might be thought to hold a very independent and disconnected relationship with the economy at large. Of course this is far from the view which dental science presents to us, or which we are accustomed to accept. Yet, when we regard ~~ment~~ held in its cavity mainly by merely mechanical adjustment, and, so to speak, cut off in all but the slenderest of vital

* Read at
5th ult.

e Annual Meeting of the Scottish Branch, at Dundee, on the

connections from its surroundings, we must allow that, if anywhere in the system an isolated fragment seemed intended, it must be the tooth fragment. There are, indeed, no other parts having at the same time a real organic place and purpose, so strikingly distinguished by their individual and sharp definition.

It is nothing wonderful, therefore, that the popular mind should be slow in realising the extent of a connection which is so little apparent on the surface. It is, in fact, to be doubted if the profession are yet fully alive to the chain of relationships established by the narrow isthmus we divide when we remove a tooth from its socket. The time, however, is now past when it would have been regarded presumptuous on our part to cross the isthmus and look abroad on the territories thus brought near to dental science, though remote enough from the gums and palate. Unquestionably that is the region we have most to think about and deal with, but it is necessary also to take into account the influences exerted on distant organs by the normal or abnormal condition of the teeth, if we are to take our proper place in relieving human suffering. The first effect of derangement or decay in the dental tissues, however produced, may no doubt generally be detected in the tooth itself. It is an almost unheard of thing for facial neuralgia dependent on functional or organic dental disease, to precede toothache. Of course, arising from other causes, such neuralgia is not infrequent, but the irritation here referred to is manifest first at its starting point in the shape of more or less distracting pain in the tooth. It may very quickly, as we know, set up the more serious affection in some or all the branches of the fifth nerve, and, in fact, this secondary affection may at once, or after some time, totally eclipse the primary malady. Pain in the tooth may cease, while the pain in the face endures. What is more remarkable, the facial neuralgia may recur without any appreciable antecedent toothache, and so apparently take the initiative in arousing the pain in the tooth. As the dental decay advances it is easy to understand how at length all sensation may be lost in the tooth itself, while there are still at intervals neuralgic paroxysms in the face. But at this stage the sufferer forgets all about the tooth, which he thinks no longer troubles him, and is sometimes so oblivious of what has passed that he requires to exert his memory to remember he has ever had a single pang in it. It is in this way that the connection between the irritation starting from a decaying tooth and facial neuralgia is lost sight of, although the

source and direction of the mischief remains precisely the same. The pain in the tooth is dormant, although the tooth is still fomenting the evil, simply because its nerve pulp is destroyed, or so changed as to be insensible, but the nerve beyond is susceptible of impression, and consequently of involving its associated branches. It is plain enough, therefore, that if the cause must be removed before the effects cease, the dentist must regard and deal with the nerve connections of the dental apparatus.

But, further, it is a well ascertained law of nerve irritation, that not only does such propagation take place through all the branches of associated nerves, but nerves not in anatomical connection may likewise be affected. Instances of this kind often quoted are such as the following: injury or disease in the ulnar nerve causes neuralgia of the fifth nerve, and so disease of the great occipital has been known to set up neuralgia in the trigeminal. The late Dr. Anstie met with a striking case of this kind, where the slightest pressure over the great occipital, which was injured, caused intense pain in the forehead and face, yet the pain in the parts supplied by the injured nerve was not greater than would have been the case under the same pressure in a state of health. We may here remark that, just as in the case of the decayed tooth, in all probability the pain had subsided in the branches of the injured nerve and was consequently overlooked. Another instance is the spasm produced in the facial muscles through irritation of the seventh nerve, by the indirect operation of toothache. It is interesting to note in this case the steps of the transmission, for before actual spasm or twitching of the muscles occurs, the patient has in all probability been suffering from facial neuralgia or irritation of the fifth nerve.

The occurrence of such distant effects of local irritation is, as you know, explained in this way: The stimulus is first conveyed along the afferent nerve of the affected part to the nucleus or central ganglion of the nerve, and is thence reflected back along all or some of the other nerve-fibres, and consequently experienced as pain in the localities to which they are distributed. There is nothing to explain, however, how the transference to nerve-fibres not anatomically connected with the irritated fibres is brought about, unless we assume what is highly probable, that it occurs according to the principle of *minoris resistantiæ*, that is to say, when disease in the ulnar nerve excites facial neuralgia, it does so because the fifth nerve or its nucleus is in a more

susceptible condition than say the sciatic or any of the other nerves—any of which are just as nearly related anatomically with the ulnar nerve as the facial. On this view, the abnormal influence exerted by the irritation of an afferent nerve is carried to the brain and is there diffused throughout, but the diffusion only tells perceptibly on the most susceptible centre. In the case of the irritation arising from teething in children, we witness this general diffusion taking effect on the entire cerebral nervous system, and resulting in general convulsions.

Now, keeping these facts in view, I wish to direct attention to a species of nerve irritation induced by decay in the teeth, which has not, as far as I am aware, been hitherto adverted to.

Although, as has been pointed out, it is not always possible to trace the route by which the irritation spreads, an attentive review of the history of the case tends to show that related organs are more likely to be affected than more distant ones. Thus, the seventh nerve being, so to speak, a close neighbour of the fifth, and concerned in the nerve regulation of the same parts, it is not surprising that when the fifth is deranged in its action and giving rise to pain, the seventh should be likewise disturbed and give rise to irregular movements. Now we have good reason for thinking that associated organs are most likely to be the parts to suffer from this species of nerve diffusion. Thus the intimate connection between the mouth and the stomach might easily lead to the surmise that nerve disturbance occurring in the former might propagate itself to the latter, and observation shows that persons whose teeth are much subject to decay are peculiarly liable to suffer from neuralgia of the stomach. Of course I am ready at once to concede that there are other modes in which this might be produced, even when truly derivative, besides through nerve irritation, but the character of many cases of neuralgia of the stomach is so similar to facial neuralgia, that it justifies us in assuming a similar mode of causation. Thus the pain occurs often with a suddenness and intensity, at first transient and occurring only for a few minutes, and then ultimately becoming more fixed. If it were due to derangement of the gastric juice or any local cause, its occurrence might be expected to be more gradual, with a continuance and gradual increase of intensity. We have seen that fitful pangs are one of the essential features in derived pain at the outset of the phenomena, and this is peculiarly noticeable in the case referred to. At all events, we would suggest as

well worthy of notice, both on the part of the dental and medical professions, the removal of all decayed teeth from the jaws of such as are the victims of stomachic neuralgia.

It must be borne in mind that it is not merely a case of the removal of pain, but an arrest of nutritive and secretive processes that are destructive of the function of the organ. For it is well known that the abnormal change in the nucleus of a nerve the seat of neuralgia, leads to abnormal trophic changes that entirely modify the condition of the organ. Thus neuralgia of the fifth may cause inflammation or thickening of the skin, or the hair to grow thick and brittle; or it may cause ulceration of the cornea or wasting of the retina, or induce thickening of the fibrous tissues, or check or control, or probably alter the lachrymal and salivary secretions. Thus it is difficult to say what mischief may not be gradually but surely produced in the stomach by the irritation proceeding from a carious tooth, and when we consider the effect of stomachic disease on the nervous system and the body generally, it is easy to understand the ever-enduring effect of this primary evil starting from the diseased tooth; thus showing us somewhat of the electric chain with which we are darkly bound.

Preparing Tissues for Microscopical Examination.*

By FRANK HARRISON, M.R.C.S., L.D.S., Sheffield.

MR. PRESIDENT AND GENTLEMEN,—A slight mistake has occurred in advertising the title of my paper. If I were to discuss the methods of preparing tissues practised by various microscopists, I should have to write a large book instead of a short paper. My intention is to describe a process which I have adopted to demonstrate the phenomena of the development of the teeth, and also to show the minute structure of the soft dental tissues. I know that a lengthy discussion of a scientific subject becomes very tedious, and not calculated to fascinate the busy practitioner or to entice the young one to become a student, and shall therefore endeavour to be as practical as possible.

I have placed under the microscope three objects for your inspection. The first is prepared from a foetal kitten of about

* Read at the Annual Meeting of the Midland Branch, at Nottingham, on April 17th.

two weeks, the second from an abortive foetal kitten of about six weeks, and the third from a kitten at birth. These kittens will serve very well as types to illustrate the first step in the process of manipulation.

The youngest—the foetus of about a fortnight old—was placed directly into a solution of bi-chromate of potash ($\frac{1}{2}$ %) in order to harden the soft pulpy tissues, and so facilitate the operation of section cutting. The second foetus and the kitten at birth were submitted to a different process. I placed them in a saturated solution of picric acid, which decalcifies the bone that has been formed in the tissues, and also hardens the soft tissues of which the mass is composed. Before immersion in the softening solution, the subject should be divided into as many small pieces as possible, of course taking care not to injure any tissues which it is wished to examine afterwards, for if the head of a kitten be placed *en masse* in the solution, it is possible that the finer internal structures may have become disintegrated before the solution has had time to penetrate its tissues. When a needle can be passed through the entire mass without encountering any obstacle, we know that complete decalcification has taken place, and that it may be removed from the solution and freely washed. Now that the softening or hardening process, as the case may be, has been arrested by washing, the mass may be put into spirit, which will preserve it for future investigation, or we may proceed at once to the next stage, which consists of immersing the tissue in a solution of gum, to which a little carbolic acid has been added, to prevent the formation of fungous growths. I generally allow a day for the gum to infiltrate itself into the various tissues of which the mass is composed, before proceeding to cut sections from it. Provided that the mass to be cut contains a developing tooth, whose tissues vary in compactness from the dense enamel or dentine to the fine, delicate, web-like structure of the stellate reticulum, it is evident that so heterogeneous a structure will require consolidating before a reliable section can be obtained. This difficulty is overcome by freezing the gum and tissue imbedded in it, and while in this condition making the various sections required. To do this with ease a microtome of some kind must be employed. At first I used Swift's ice and salt freezing microtome, but more recently have manipulated with Cathcart's ether freezing microtome, as follows:—

The substance to be cut is placed, together with a little gum,

upon a zinc plate, under which an ether spray is working. Two parallel glass slabs are fixed, one on either side of the zinc plate, which act as a rest for the razor or plane iron to glide upon, which, with the frozen tissue upon it, can be raised by turning a milled head screw, and the tissue cut by sliding the knife, coated with spirit and water, along the glass slabs. A fine section of the tissue will now be found on the knife, and should be carefully washed off with a camel-hair brush and a free supply of spirit and water into a shallow vessel containing distilled water. The nests of cabinet saucers used by architects are very useful receptacles for the sections. When one saucer is filled with them another may be superimposed upon it, and will be ready to receive more sections, and also perform the function of keeping those in the lower saucer free from dirt until time can be devoted to mounting them.

The section cutting is continued until a sufficient number of good specimens has been obtained.

Our whole attention is now turned to the successful mounting of the sections. Since the tissues when cut were infiltrated with gum, we naturally suppose that the water in which they are contained will have a little in solution, and if they have remained for some time in the water we shall know by its yellow colour that it also contains some picric acid.

The whole of the water with the gum and picric acid in solution may be removed by means of a small syringe, leaving the sections almost dry on the bottom of the vessel. Distilled water is now added and the process repeated until the sections are quite free from gum and acid. The washing should not be continued for long if we wish to retain the picric acid as a staining agent.

A few drops of picro-carmin or logwood should be added to the water containing the sections, care being taken in the case of logwood to filter before using. The sections will stain rapidly or slowly according to the strength of the staining substance used. I generally allow my sections to remain in the weak fluid for from eight to ten hours. When the sections are sufficiently dark in colour the staining fluid may be drawn off by means of the syringe as before described, and clean distilled water substituted. The sections are protected by a lid from any dust, which might fall upon them while the slips and cover glasses are being cleaned and prepared for use.

A little difficulty now presents itself, viz. : How is a thin section

to be got upon the glass slide without tearing or injuring? My plan is as follows :—

In my left hand I have a clean round cover glass held between the nibs of a pair of foil carriers and dip it into the water containing the sections. With a fine gold needle inserted into a camel hair brush carrier held in my right hand, I draw the water over the upper surface of the cover. Having decided which section to take I pass the cover close to it, and then slightly tilt the section with the gold wire, at the same time passing the cover glass clean under the section as it were to float it upon the cover. The glass cover is gradually removed from the water, the gold wire holding the section in place until its upper edge is out of the water. If the section is not flat on the cover, it may be refloated and brought into proper position. Place the cover on one end of a clean glass slip, and examine it with a low power under the microscope to see if the section is worth preserving, if so drain off the water from the cover with blotting-paper and add two or three drops of absolute alcohol to the section. After the spirit has remained on the section for a few minutes, it will have abstracted any water which was left by the blotting-paper and may be removed in the same way as the water itself. Two or three minims of oil of cloves, dropped from a drop bottle upon the section will clear it and remove any spirit which may have remained. The work of mounting is now almost at an end, it only remains to allow the cloves to drain off and drop two drops of Canada balsam upon the section. A watch glass may be inverted over the cover to protect it from dust, and the specimen left to stand over night. In the morning the glass cover with the section upon it is seized with the foil carriers and turned completely over on to the centre of the slip. If the process has been carefully and properly performed the practitioner will have in his possession a preserved object, which will instruct and amuse him in his leisure hours.

Before closing I should like to warn the young student against two great enemies, viz., dirt and moisture. Nothing short of absolute cleanliness in manipulating will get rid of the dirt, and every minute particular will have to be attended to, to prevent moisture making its appearance in the finished object.

HOSPITAL REPORTS AND CASES IN PRACTICE.**Case of Irregularity due to Thumb-Sucking, with Treatment.**

By J. AUSTIN BIGGS, Glasgow.*

THE case I am about to bring before you is that of a young lady, now aged 21, who was brought to me by her parents, about the end of 1878, on account of the abnormal state of her dentition. The peculiarity consisted in a marked recession of the lower jaw, coupled with the protrusion of the teeth in the upper. At that time, considering the age of the patient,—about fifteen,—

WITHOUT DENTURE.

I thought there would be little difficulty in effecting the desired alteration. I therefore began at once, and inserted plates on both jaws for the purpose of bringing back the teeth of the one and pushing forward those of the other. I may say that I found it necessary, in order to gain sufficient space, to extract the upper canines, my choice of these being guided by their occupying a

* Read at a meeting of the West of Scotland Branch at Glasgow, in April.

position where the greatest space might be gained, and by the consideration that they were likely to offer greater resistance to treatment.

I was very successful in pushing and dragging the teeth into the desired positions, the process occupying nearly three months. The young lady then became irritable and impatient, and as she was of delicate constitution, it was deemed injudicious to persevere any further in the effort to make her wear the apparatus. Notwithstanding, therefore, that the desired haven was reached, the anchor had to be slipped, and to my utter disgust the whole thing was allowed to drift back and become a wreck.

DENTURE INSERTED.

You will sympathise with me when I tell you that I neither saw, nor desired to see, that young lady for some considerable time after my disastrous experience, but when I did I was somewhat agreeably surprised to find that the collapse had not been quite so complete as I had anticipated. I saw the young lady frequently, but never gave the slightest attention to the case till a few months ago, when observing her in conversation, I was struck with the beauty of the upper portion of her face, which is of the

Grecian type, and I began to regret the failure, to pity the result, and to seek a solution of the difficulty.

I abandoned my former intentions, took new casts, and proceeded to strike up a very neat light platinum case to fit over the crowns of the first six teeth, *i.e.*, the incisors and canines. Having succeeded in fitting this accurately, I then mounted six teeth on it, built up on an artificial gum by the Verrier process, and thus built out her lower jaw to a normal occlusion with the upper.

I know not if this idea be a new one. After some recent exposures it is perhaps, to say the least, risky to claim originality for anything in dentistry now-a-days. But at all events I never before witnessed any such attempt to restore the contour of a face, and in that sense, at least, I hope it may be new to you. I am fully aware that I have not in this instance succeeded in attaining all that could be desired; nevertheless, you will see that it is by no means a failure, and it may be worth keeping in mind for some future occasion. The young lady is present and has kindly consented to allow the work to be seen both in and out of the mouth.

I consider this case to be purely the result of thumb-sucking. There is no previous history of any tendency to this abnormal condition in the family. This patient's mother is a lady of remarkably fine proportions, with a highly intelligent classical Grecian face, good mouth, well-developed jaws, and teeth of splendid texture and very symmetrical. Her father is a gentleman of excellent physical development and very intellectual, though of a highly nervous temperament; he has good massive jaws, and capital teeth, quite normal in form and position. All their relations are similar, yet singular to relate, one of this patient's brothers, about fourteen years of age, is showing a somewhat similar condition of abnormality. A younger brother, aged about nine years, was an inveterate thumb-sucker, but I insisted on the habit being given up, and I am glad to say he has escaped the deformity.

Dental Hospital of London.

THE Annual Distribution of Prizes amongst the students of this institution, will take place at 5 p.m. on Friday, the 24th inst., at the Hospital, in Leicester Square, Sir J. Risdon Bennett, M.D., F.R.S., in the chair.

REVIEWS AND NOTICES OF BOOKS.

DISEASES OF THE TONGUE ; by HENRY T. BUTLIN, F.R.C.S.,
Assistant Surgeon and Demonstrator of Practical Surgery, St.
Bartholomew's Hospital, &c. London, Cassell & Company.

If the quality and character of the numerous works constantly flowing from the medical press were on a level with Mr. Butlin's book, a reviewer's task would be at once easy and agreeable. As our own columns, not less than those of our contemporaries, show, this is far from being the case, and when now-a-days a new work is not at once unequivocally condemned, it frequently, at best, receives that faint praise which is hardly distinguishable from actual condemnation. The truth is there is a great deal too much of useless bookmaking. It is not always easy to guess the objects of authors ; it is better sometimes not to search too curiously for motives.

“ 'Tis pleasant, sure, to see one's name in print ;
A book's a book, altho' there's nothing in't ” ;

And when the gratification of vanity is the sole incitement, less harm is done, perhaps, than when the promptings are of a less worthy nature. Many failures are of course made in good faith, the authors not possessing necessary literary skill in imparting the knowledge of which they may have adequate mastery. There is, however, a certain class of author whose works are received with the certainty that they will be found solid contributions to science ; and among surgeons this class is composed of that large band of earnest workers who through all ages have worthily upheld the renown of British surgery. This class, whose most famous representative in days gone by was John Hunter, is represented in later generations by such men as Liston, and Brodie, and Paget. These are the men who, bringing philosophical minds to bear upon the solution of the problems involved, have developed at this latter end of the nineteenth century, a system of practical surgery which in its marvellous achievements would have seemed impossible, or little short of miraculous, to earlier generations. Mr. Butlin is a representative man of the younger race of surgeons of this type, some of whom have been at most times attached to the famous school of St. Bartholomew's Hospital ; and it was a foregone conclusion that any work emanating from such a source must be of first-rate quality. The author states that ever since he has been a member of the staff he has used the large

opportunities which the out-patient practice at the hospital has given him, of collecting notes and drawings of diseases of the tongue. This was done without any definite intention of publication ; when, however, he was invited by Messrs. Cassell to undertake the writing of a work on Diseases of the Tongue, Mr. Butlin undertook the task on account of the opportunity it afforded of bringing his material before the profession much more thoroughly than might have been otherwise possible. In addition to his own cases the author had all along the advantage of observing many under the care of his colleagues, and in particular some most valuable cases and notes have been contributed by Sir James Paget. From all this it may be gathered that the work is in the best sense of the word original, and it is no less exhaustive and complete. Morbid anatomy, pathology, and clinical and operative surgery are all elucidated from personal investigation and experience.

If there be any one organ after the teeth, with the diseases of which a dentist ought to be specially acquainted, it is the tongue. The tongue cannot escape his constant observation, and, if he be ignorant of its diseases he not only loses a source of interest, taking him out of what is often a narrow groove of somewhat mechanical routine; but he misses many an opportunity of rendering important service to suffering patients. It is not within the province of the dental surgeon to treat any disease of the tongue, his function is confined to dealing with those dental conditions which either originate or tend to aggravate the maladies of that organ ; but he nevertheless may often by a timely hint or suggestion direct a patient to seek immediate surgical assistance, which, if neglected, often leads in maladies of the tongue to disastrous consequences. A treatise so complete and trustworthy as the one before us not existing in any language, and the text-books of the day containing accounts of diseases of the tongue, which in comparison must be considered bald and meagre, we apprehend that Mr. Butlin's book will in the future be found indispensable by every dental student and practitioner who desires to be fully informed on the subject.

We do not know with what feelings the entry of Messrs. Cassell in the field of medical publishing has been received by the eminent houses who have hitherto, not unsuccessfully, ministered to the wants of the profession ; but we are sure that, at any rate in the end, the medical reader, at least, will be the gainer. The

capital and enterprise which Messrs. Cassell are bringing to bear must tend in some directions to raise the whole standard of medical literature. For example, it will henceforth be impossible in the face of exquisitely illustrated books like the one under review, to issue, with the remotest chance of success, works containing the in-artistic drawings which have hitherto in most cases been deemed good enough for ordinary medical literature. Modest as is the price of the work before us, nothing could be more perfect as correct portraits of disease than the coloured illustrations which it contains, and we have seldom or never seen in any work, however pretentious, drawings so true, so beautifully executed and so thoroughly artistic withal. As an atlas of diseases of the tongue, these drawings are alone enough to make Mr. Butlin's work one of the most valuable recently issued from the medical press.

DAS FULLEN DER ZAHNE MIT GOLD, &c., NACH
DEUTSCHER METHODE, VON WILHELM HERBST. C.
ASH & SONS, Berlin, 1885, pp. 43, 8vo.

WE commend this little book to the notice of all who are interested in the Herbst method of filling. In it the inventor gives a detailed description of his process, first as applied to gold, then to tin and gold, and lastly to amalgam fillings. A good account of gold-filling by rotation will be found in Mr. Storrer Bennett's paper, read before the Odontological Society in January last, an abstract of which will be found in our January and February numbers. An abstract of Dr. Herbst's chapter on Tin and Gold Filling also appeared in our February issue. As to the use of amalgam, Dr. Herbst says the same care must be taken in the preparation of the cavity as if it was about to be filled with gold; the rubber dam should be used, and a steel matrix fixed with wedges as for gold. Dr. Herbst is very strong in praise of his own amalgam, supplied by Ash and Sons. It should be used quite plastic, about three-fourths of its weight of mercury being added; from this mixture no mercury can be obtained by squeezing. The cavity is about half filled with amalgam; this is thoroughly condensed with a large headed burnisher attached to the engine, then fresh is added and condensed until the cavity is full, when the surface is trimmed and should be polished at a subsequent sitting. Dr. Herbst gives many useful hints respecting the manage-

ment of the matrix, &c., and a perusal of his book, which is not difficult to read, will save a beginner much loss of time and probably some failures.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odontological Society of Great Britain.

THE last meeting of the session 1884-85, took place at 40, Leicester Square, on Monday, June 1st, Mr. C. SPENCE BATE, F.R.S., President, in the chair.

Mr. REDMAN, of Brighton, shewed several interesting specimens, amongst which was a bicuspid which appeared to have been split by the pressure of gas in the pulp cavity. The patient suffered intense pain for two days, when it suddenly ceased and she found that the tooth was "loose." When she came to Mr. Redman he found the tooth split vertically down the middle. It was perfectly sound, and as it had no antagonist the fracture could not have been caused accidentally during mastication.

The PRESIDENT related particulars of a case of fracture of an upper second molar, in which, however, he had succeeded in saving the tooth. The patient suffered severe pain in the tooth for some days and forced a quantity of cotton wool into what she thought was a carious cavity. But when she came to Mr. Bate the tooth was found to be split from crown to base, and the wool had been forced into the cleft, keeping the fragments apart. This was taken away, an old stopping which was involved in the fracture also removed, a dressing of carbolic acid and glycerine placed in the cavity and an elastic band placed round the tooth. On the third day, the tooth being quieter, some gold wire was placed round it and screwed up until the fragments were in close contact. After a few days the cavity was prepared and filled with amalgam, and the gold wire was replaced by a band composed of several coils of platinum wire. The tooth had remained comfortable up to the present time and appeared likely to be permanently useful.

Mr. HUTCHINSON said he had met with three cases of split teeth in two years. In some of these he had used iron binding wire to keep the fragments together and they had remained quiet and useful. In future, however, he should use platinum, as he found that the iron wire needed renewing at the end of six months.

Mr. A. WILSON (Edinburgh) presented to the museum the skull of a Bandicoot (*mus giganteus*) and called attention to the peculiarity of its lower incisors. He also exhibited the upper incisor of a kangaroo rat, pointing out that the statement usually made that this tooth was one of continuous growth was erroneous.

Mr. W. A. MAGGS showed a model of a case of abnormal dentition, and gave the following particulars with reference to it. The patient was a boy, aged eleven, a small but intelligent lad, the third child of a family of five; there was nothing unusual in the dentition of the others. His father stated positively that no teeth had been extracted. All the molars, except one of the first set, the second bicuspid, and the lower central incisors, were absent. The boy had been sent to Mr. Maggs for his opinion, having been refused admission into a naval school solely on account of the absence of his molar teeth, being considered eligible in all other respects. As the boy would be eligible for admission up to the age of thirteen, the question of prognosis was of some importance. From the appearance of the mouth Mr. Maggs was disposed to give an unfavourable opinion, but he should be glad to hear those of some of the members present.

Mr. OAKLEY COLES said he had exhibited and presented to the Museum some years ago models of the mouth of a boy aged thirteen, showing a condition of things very similar to that seen in Mr. Maggs' case, and he could state with regard to the patient that when seen three years later there was still no appearance of any molars.

The PRESIDENT read a communication from Mr. H. C. Quinby, of Liverpool, in which he suggested the use of a mixture of equal parts of the hydrochlorate of cocaine and arsenious acid for devitalizing tooth pulps. In the few cases in which he had tried this combination the results had been very satisfactory, the arsenic doing its work as usual, whilst the cocaine saved the patient the *mauvais quart d'heure* which ordinarily resulted from the application. He rubbed the crystals of cocaine and arsenic together in a mortar until they formed a stiff paste. The tooth should be syringed with warm water, then dried, and a small portion of the paste—which he found by careful weighing to be about a twentieth of a grain—placed on the exposed pulp, and covered with cotton wool and sandarach or mastich in the usual way. He hoped members would try this, and report the results.

The President then called upon Mr. Chas. Tomes to give an account of his experiments with Amalgam Fillings.

Mr. CHARLES TOMES said he felt almost ashamed to bring before the Society the very small number of experiments which he had lately made with reference to the behaviour of amalgam fillings, more especially after the far more extensive and varied series of tests which had been carried out not long since by Dr. St. George Elliott. But though the experiments he was about to refer to were few in number, they were carried out on different lines from those made by Dr. Elliott, and they were of a very practical tendency. He thought, therefore, that it would be as well to place the results before the Society, more especially as it would be some time before he should be able to continue them.

The object of his experiments was to ascertain the best method of packing amalgams so as to obtain watertight fillings, using the amalgams under the conditions under which they were most valuable. He had not, therefore, used them very dry, but always sufficiently plastic to work easily. He had been led to make the experiments by Dr. Bonwill, of Philadelphia, who had shown him last Christmas some amalgam fillings of exceptional excellence, and who had also demonstrated to him his method of filling, which was quite different from any which he (Mr. Tomes) had ever seen before. The great difference between Dr. Bonwill's method—which had been well described by Mr. Ewbank in the JOURNAL OF THE BRITISH DENTAL ASSOCIATION for April—and that usually adopted, was that the excess of mercury was squeezed out after the amalgam had been inserted into the cavity instead of before.

In order to satisfy himself as to the advantages of this method, he (Mr. Tomes) had inserted a certain number of fillings in this way, and others in the manner usually adopted, and had tested them with Draper's ink.

Briefly stated, the results of these experiments were as follows. Using Dr. Bonwill's amalgam and packing it with burnishers in the usual way he did not get a watertight filling under any circumstances, and the same result followed when other amalgams were used. But if the amalgam was packed according to Dr. Bonwill's method, a filling was obtained which was watertight everywhere *except where there was a chamfered edge*. The Standard alloy and Welch's amalgam gave equally good results with Dr. Bonwill's amalgam under these conditions, as they had given bad ones under the former.

The fact to which he had just referred, viz., that leakage occurred in all cases where the cavity had a bevelled edge, to the extent of that bevelling, whether the filling had been inserted by Dr. Bonwill's method or not, was an important one. Feather-edged fillings could not always be avoided, but it was clear that if amalgam be used under these circumstances, a watertight filling must not be expected. Of course this did not apply to gold fillings, but for amalgam the edge of the cavity must always be square.

Some other experiments had been tried by Mr. Baldwin and himself. The result, however, of all these, so far as they had gone, went to show that Dr. Bonwill's method yielded the best results, as well as being the easiest of application.

For the purpose of these trials they had taken molars with large cavities not too simple in form,—just the cases for which in practice amalgam would generally be used,—and they had inserted the fillings with average care. The experiments had not been sufficiently numerous or varied enough to prove anything conclusively, and must simply be regarded as suggestive. But, so far as they went, they seemed to indicate that the use of a good plastic amalgam, according to Dr. Bonwill's plan, afforded prospects of a success greater than that usually obtained.

Dr. ST. GEORGE ELLIOTT said he was very pleased to hear Mr. Tomes speak so favourably of Dr. Bonwill's method of inserting amalgam fillings. Dr. Bonwill wrote to him (Dr. Elliott) about two years ago describing his method; he (Dr. Elliott) at once tried it, and finding it satisfactory he had used it ever since. With regard to Mr. Tomes' experiments, when that gentleman told him what he was doing, he (Dr. Elliott) thought he would try some experiments too. He accordingly put in about a hundred fillings of amalgam, oxyphosphate, and gutta percha; they were inserted into simple cylindrical cavities, some large and some small, but bevelled at the edge, and *they all leaked*.

Mr. OAKLEY COLES said that on recently examining a number of amalgam fillings, inserted in glass tubes and in ivory, which had been sent to the Society some time since by Mr. Fletcher, of Warrington, he noticed a fact of some interest in connection with the results obtained by Mr. Tomes. Some of these fillings had stood the ink test well, others only fairly well, there being evidence of a certain amount of leakage—in some cases extending to two-thirds of the thickness of the filling—but in all cases both the

upper and lower surfaces of the fillings were *cupped*. This was evidently due to a contraction of the amalgam in setting, and he thought it showed that the contraction was greatest in the direction of the least thickness, and would thus explain the curling up of the edges in shallow cavities or overlapping borders of fillings.

Mr. F. CANTON said it seemed to be assumed that the most important point about an amalgam filling was that it should be watertight. But did the fact of a filling being watertight make it reliable? He believed it was generally admitted that gutta-percha fillings always leaked, yet it was well known that gutta-percha would prevent decay better than almost any other material.

Mr. HUTCHINSON asked whether Mr. Tomes had tried the same experiments with the three amalgams he had mentioned, and whether the results were the same in each case? Had Mr. Tomes made any experiments with palladium amalgam or Sullivan's?

Mr. STOCKEN asked whether any steps had been taken to ensure that the proportion of mercury to other metal should be the same in all cases. It was impossible to get definite results except with definite proportions. It appeared to him that Dr. Bonwill's process of squeezing would produce an effect which had not been referred to. The mercury which was pressed out and removed would not be pure, it would take out a certain amount of the other constituents and would remove these in very unequal proportions, and the composition of the filling which resulted would thus be considerably altered.

Mr. STORER BENNETT remarked that amongst the specimens of fillings inserted by the rotation method which had been sent over by Dr. Herbst, and which he had exhibited at a recent meeting of the Society, were two amalgam fillings. Great pressure was brought to bear on the material during the process of filling by Dr. Herbst's method, and it appeared to him that the pressure of the large rotating burnisher would produce much the same effect as that applied in the method described by Mr. Tomes. It would seem, therefore, that Dr. Bonwill and Dr. Herbst had been working independently on the same lines. Dr. Herbst had also laid down the rule that no chamfered edge must be allowed.

Mr. ANDREW WILSON said he thought the methods followed by Dr. Bonwill and Dr. Herbst differed most materially. That of Dr. Herbst was just that which Mr. Fletcher of Warrington recommended for his amalgam, only done with the engine instead of by hand.

Dr. Field said he had never made any experiments out of the mouth, but he thought that most of the failures with amalgam filling were due to the fact that sufficient care was not taken in their insertion. The cavity should be carefully prepared, no thin edges being allowed, then the rubber dam should be fixed, and the amalgam inserted with considerable pressure; whether the engine or hand pressure only was used was, he thought, of little importance. Dr. Bonwill evidently used a considerable amount of force, and the result was a very compact filling. He himself was accustomed to use a hand burnisher, but with heavy pressure, and removing the softer portions which appeared on the surface. He believed that if the same care was taken in the insertion of amalgam fillings as was taken with gold, failures would be much less common.

Mr. BROWNE-MASON (Exeter) asked how it was that, if all this care was necessary for the proper insertion of an amalgam filling, their predecessors of forty or fifty years ago managed to put in fillings which lasted so well. Their method was certainly not elaborate, yet he frequently came across fillings which had been put in thirty or forty years ago, and were still good. For one thing they did not approve of chamfered edges—he found in all the fillings he examined that the edges were nearly straight—and they were staunch patrons of that very excellent old preparation of Sullivan.

Mr. WALTER COFFIN said a very similar method to that lately advocated by Dr. Bonwill had been practised for the last twenty years by his own father. His plan was to pack the amalgam with a large burnisher, using very considerable pressure, and removing with gold foil the excess of mercury which was thus squeezed out. The good results which he knew to have been obtained by this method led him to think highly of that now introduced by Dr. Bonwill.

The discussion was continued by Messrs. H. Blandy, Oakley Coles, Charters White, and J. S. Turner.

Mr. TOMES, having been called upon by the President for his reply, said he thought most of the speakers had taken his experiments too seriously, and he would repeat that he considered them suggestive only, and not as proving anything definitely. The amount of pressure exerted by Dr. Bonwill was very considerable, more than would be used during the insertion of an ordinary soft gold filling; in the case of a crown cavity he told

the patient to close the teeth and bite hard. The amalgam was not used very soft, only thoroughly plastic; still even from such a mixture a considerable quantity of mercury could be squeezed out. He agreed with Mr. Coles' explanation of the cause of the leakage where there was a bevelled edge, viz., that the amalgam curled up as it set; and this was, no doubt, the cause of Dr. Elliott's failures. He himself had obtained watertight fillings by Dr. Bonwill's method, except at the feathered edge. Pressure applied with a burnisher had not the same effect as when applied over the pad of paper or amadou; it would be found that mercury could be squeezed out of a filling by this means where none could be got by the pressure of a burnisher. The pressure must be diffused over a considerable part of the surface of the filling. With regard to the preparations used in these experiments he must emphatically state that he had not intended to compare different amalgams, but only the different methods of packing. He had used more of Dr. Bonwill's amalgam than any other, and had not used palladium amalgam because he was already aware that he could make a watertight filling with it.

It might be true that the mercury would take out gold or tin from the preparation, but this did not matter in the least so long as the resulting filling was watertight, nor, so long as this result was obtained, did it matter whether the central and peripheral portions of the plug differed slightly in composition. It was, of course, well-known that amalgam fillings would sometimes last forty or fifty years, but the average duration of an amalgam filling was far short of this. In making these experiments the mercury used was not weighed, but the amalgam was mixed to the same degree of plasticity, and the teeth when filled were put into the ink bottle at once.

There was one practical point which might be worth mentioning, since he had himself found it afford a useful indication, viz., that if, when the filling is polished at a subsequent sitting, no dark line can be seen round the edges, it may be considered satisfactory, but very often the line of junction was too distinct, and then leakage might be suspected.

The President then called upon Dr. George Field for his paper on "Pivot Teeth attached by Cohesive Gold and Morrison Gold Crowns."

Dr. FIELD said he had not anticipated that the short communication which he proposed to make, would be accorded the place

of honour as the paper of the evening. It had been suggested by the remarks which had been made at the previous meeting with reference to the durability of teeth pivoted by the old methods. He had nothing new or original to bring forward on the subject, but he wished to offer one or two arguments in favour of a more modern and more elaborate method of attaching porcelain crowns to roots. He could bear witness to the durability of teeth pivoted by the old method, but he believed that at the present day dentists had to deal with very different conditions, and that their method of practice must be modified to meet these altered circumstances. In the first place, the quality of teeth which the practitioners of the present day had to work upon, was not so good as that which fell to the lot of their seniors. In the second place it must be remembered that in former days it was rare that any but a sound root was pivoted, and that many teeth which would now be saved would then have been extracted without hesitation. The apparent success of the old method was not due to the means employed, but rather in spite of them, just as similar teeth were saved by gold and amalgam fillings which would not be considered creditable at the present day, *i.e.*, in the face of shrinkage, looseness, overhanging margins, &c. It was with the inferior quality of teeth, and under the less favourable conditions with which practitioners were now expected to deal, that he claimed superiority for the method he was about to describe, and which had been first introduced by the late Dr. Marshall Webb.

Supposing the root to be in a healthy state, the first steps were to enlarge the canal to as near the apex as was prudent, close the apex, grind the end of the root level with the gum and polish its marginal surfaces. Then choose a suitable crown, fit it to the root and back it with thin gold. The pivot should be either square or triangular gold or platinum wire, sufficiently long to extend to the end of the canal when soldered to the backing. Next place the tooth and pivot *in situ*, fasten them together with wax, remove the whole carefully from the mouth, encase in plaster, and solder the pivot to the backing; then, by means of corundum or emery disks, cut a groove on both sides of the porcelain and across the cutting edge above the backing; into this the cohesive gold must be carefully packed. Having the crown thus prepared, adjust the rubber dam, fix the pivot in the root by means of a good quick-setting oxychloride cement, leaving a space of one or

two lines between the porcelain face and the root to be filled with gold. When the osteo is sufficiently hard, remove enough from around the pivot to obtain a firm foundation for the cohesive gold; then proceed to build up the contour of the tooth into the grooves already mentioned. When completed, finish carefully as an ordinary contour filling, giving special attention to the margins, this being the weakest point in all operations upon the teeth.

He had not gone into all the details of this method, but he thought the description he had given would enable anyone who chose to exercise his manipulative skill to fix such a tooth properly.

The advantages of the Morrison crowns were, the ease with which they could be fitted to bicuspid and molar teeth; whilst owing to the firm support given to the root by the closely fitting band and the great strength of the whole combination, they could be used on roots which would be condemned as useless for ordinary pivoting, and would restore the tooth to nearly its original usefulness.

The root should be prepared by cutting down to the gum, and removing with a fissure burr any inequalities of the periphery and all the enamel edges. A strip of 22-carat gold as wide as the length of the proposed crown is then fitted as accurately as possible to the root. The cap or cusps should then be struck up, fitted and soldered to the band, the depressions inside the cap having been previously filled up with solder. The root canals should be prepared as for the Webb pivot, and the wires fixed in the canals with cement in the same way; these should extend as far above the root as possible without coming in contact with the crown. The gum having been pressed from the root and the parts kept thoroughly dry, the crown is filled with cement, placed on the root and driven home with a few taps of the mallet; a small hole should first be drilled in one of the cusps through which the surplus cement may escape. Dr. Field then handed round one of the crowns, and also the steel dies from which they were made.

The PRESIDENT asked whether Dr. Field had not found putting on the rubber dam rather troublesome in such cases as he had described, and whether it was not rather a painful part of the operation?

Mr. OAKLEY COLES said that, instead of pressing back the gum, he had sometimes adopted a plan which answered very well,

viz., that of making a bridge of oxychloride filling between the contiguous teeth, and using this as a point of resistance for the rubber dam. This arrangement kept the parts fairly dry and did not cause the patient any suffering.

Mr. WALTER COFFIN asked whether the retention of the crown and pin depended mainly on the cement, or did the gold help to retain them? And, if discolouration could be avoided, did gold offer any advantage over a good amalgam used in the same way?

Mr. HUTCHINSON said he was accustomed to make use of the following plan, which he found answered very well, and caused very little pain. He took a piece of pin wire about four inches long and passed one end of it through a lump of brown wax. He then put the end of the wire into the root canal, and pressed down the wax on the top of the root with his thumbs. It would be found that the wax would force back the gum round the end of the root, and if removed would give a model of the root with the pin in position and the contiguous teeth. Or the wax could be pressed down until the top of the root was exposed, and the rubber dam applied over the wax and tied on with silk. Gutta percha might be used in the same way, but the brown wax was more plastic and answered the purpose quite as well.

Dr. FIELD, in reply, said that the rubber dam could be applied with but little pain to the patient by adopting the following method. After the root has been properly prepared, the end of the root should be capped with a considerable thickness of gutta percha. This should then be firmly pressed down upon the end of the root, and against the gum, using large-headed burnishers for the purpose. With a little firm pressure this would force the gum from the margins of the root without pain to the patient. The gutta percha might be left on for two or three days, until the crown was ready for fixing. Then, previous to the application of the rubber dam, one or two applications of cocaine between the free margins of the gum and the root would enable the operator to push the rubber still further up on the root without paining the patient; a thin spatula-shaped instrument should be used for this purpose.

In reply to Mr. Walter Coffin, he depended mainly upon the cement for retaining the pin, but the gold also assisted, as it was carried a certain distance down the canals around the pivot. No doubt good results might be obtained by the use of amalgam, but

the same scrupulous attention to details was essential in its use as with gold.

The PRESIDENT then offered the thanks of the Society to Messrs. Tomes, Field, Redman, Wilson, and other contributors of specimens and communications, and said he hoped all present would meet again at the next meeting, on November 2nd, when Mr. Frederick Eve, F.R.C.S., Curator of the Museum of the Royal College of Surgeons, would read a paper on "Some Points in the Pathology of Cystic and Encysted Tumours of the Jaws."

The Society then adjourned.

National Dental Hospital.

THE Annual Distribution of Prizes amongst the students connected with this Institution took place on the evening of the 6th instant, at the Beethoven Rooms, Harley Street, Dr. ALFRED CARPENTER, of Croydon, taking the chair.

The DEAN (Mr. THOS. GADDES) said that the school was progressing satisfactorily. During the past year six students had taken the dental diploma, and there were twenty-four attending the classes, which was about the average.

During the past year, Mr. Charles Glassington had been elected lecturer on Dental Materia Medica, and three additional anæsthetists had been appointed; as a result of this there had been an increase during the year of 1807 operations under anæsthetics.

The Rymer Gold Medal for General Proficiency had not been awarded, this being the first occasion on which it had been withheld: the other prizes had, however, been distributed amongst a larger number of students than on any previous occasion, the twelve prizes having been won by ten competitors.

The Medical Committee had decided upon offering one Free Scholarship annually, tenable for two years, the nomination being at the discretion of the Committee of Management of the Dental Benevolent Fund, to provide dental education at the National Dental Hospital and College for the son of a deceased, or sick, registered dental practitioner, whose professional education should have been commenced prior to such application to the fund.

The Prizes and Certificates were then presented. Mr. A. C. Poole taking the medal for Dental Mechanics, and Mr. Lovitt a certificate of honour. Mr. B. Douthwaite received the medal

for Dental Surgery and Pathology, and Mr. Tucker a certificate of honour. Mr. Lombardi received the medal for Dental Anatomy and Physiology, and also that for Metallurgy, Mr. E. G. Carter taking the certificate in the former class, and Mr. Jas. Rymer that in the latter. Mr. E. C. Perks took the medal for Operative Dental Surgery, and Mr. W. J. Fisk the certificate of honour. Mr. F. Wright received the prizes of the Students' Society for the best paper, and for the best set of casual communications brought before it during the year.

Dr. CARPENTER then delivered a short address, in which he referred to the fact that twenty-nine years ago he had taken the chair at a meeting convened by Mr. Lee Rymer, at the London Tavern, which had resulted in the formation of the National Dental Hospital and College. He congratulated the dental profession on the great progress it had made in education and in organisation since that date. In fact, in some respects, dental education was now on a more satisfactory footing than was that of the general medical student. Some time ago medical apprenticeships were abolished, and unfortunately nothing equivalent had been introduced in its place. The dental student had still the advantage of his apprenticeship in which he learned thoroughly the art of dental mechanics, and was thus prepared to derive greater benefit from his hospital studies.

The dental profession now occupied its proper position, and in future its members must be educated as gentlemen, and not only so, but, in order to be skilful and successful practitioners, they must also possess a considerable amount of artistic perception. He did not think the day would ever arrive when Parliament would pass an Act making it an offence for an unqualified man to pull out teeth, nor did he think this desirable. The public must be allowed some liberty. But he felt sure that the dental profession would come to occupy such a position in the eyes of the public that irregular practitioners would find their occupation gone.

In conclusion, Dr. Carpenter congratulated those who had obtained prizes on their success, and begged them and others who would soon be entering on the practice of their profession, not to think only of filling their pockets, but to consider their position and duties as citizens and as members of a learned profession.

Mr. LEE RYMER then proposed a vote of thanks to the Chairman for presiding, which Dr. Carpenter briefly acknowledged, and concluded the proceedings.

Those present were afterwards entertained with an excellent concert of vocal and instrumental music, under the direction of Mr. Selwyn Graham.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Biological Studies on the Fungi of the Human Mouth.

BY PROFESSOR W. D. MILLER, Berlin.

(Concluded from page 311.)

By the use of the methods described I have isolated twenty-two different fungi from the secretions or deposits of the human mouth, and have endeavoured to determine, as far as possible, their separate peculiarities of growth, physiological action, &c. It will, however, at once suggest itself to every one, that a thorough study of twenty-two different fungi involves an enormous amount of labour, and might constitute almost a life task for one experimenter. The task is, moreover, rendered still more difficult by reason of the fact that many of these fungi show differences of action when cultivated in different media, rendering the number of experiments necessary to come to a definite conclusion doubly great. I shall, therefore, not attempt to present an exhaustive treatment of the subject, but rather an introduction, hoping, at the same time, to establish some points which may be of use in bringing about a clearer understanding of the factors involved in the production of dental caries.

Regarding the first point to be considered—the morphology of the fungi—it is not at all necessary to enter into a minute description of all the different forms. Suffice it to say that ten of them are micro- or diplococci, five are bacteria and six bacilli. Some show more than one form of development. It would, however, lead us too far from our subject to discuss this fact here.

In liquid media three grow out into long leptothrix, forming bundles or meshes of intertwining uni- or multicellular threads, while one develops into spirilli; eight are motile, fourteen are non-motile, while three only have been seen to form spores. The others multiply by division alone. With reference to the latter point, however, I have not made examinations sufficiently careful or extensive, to be able to speak decidedly. Eight liquify nutritive gelatine, one converts it into a paste, thirteen leave it unchanged.

On Agar-Agar, the differences of growth are not sufficiently pronounced to deserve particular mention. The microscopic appearance of the colonies forms a much safer means of diagnosis than the morphological characteristics of the fungi, it being very seldom that in growing two fungi present exactly the same appearance. An exception is, however, presented by 6 and 7,* which grow on gelatine to the naked eye and under the microscope exactly alike; moreover, on potato, white of egg, blood-serum, Agar-Agar and milk, their effect is identical. One, however, produces a yellow coloring matter, the other not, and thereby they are easily distinguished. The others may all be readily distinguished by their growth on potato.

In relation to oxygen they show great differences. Ten are strictly aerobian; *i.e.*, they grow only where the air has free access. Four are not strictly aerobian; *i.e.*, they propagate also when the atmospheric air is excluded, though not so rapidly. Eight grow equally well with or without access of air. Sixteen produce an acid reaction in a solution of beef extract, peptone and sugar. Four produce an alkaline reaction without the appearance of bad smelling products, and appear to leave the solution neutral. With regard to the six, however, the results were not satisfactory, sometimes the reaction being acid, at other times neutral or alkaline, depending somewhat upon the material used for the cultures.

Some which produce an acid reaction in fermentable solutions give rise to an alkaline reaction in non-fermentable solutions. The acid produced is probably in nearly all, or in all these cases, lactic acid. This fact I established for No. 1 by chemical analysis, for No. 2 by forming the zinc salt and crystallizing, for No. 5 by the color test.† In the other cases the acid was not determined.

* The original paper is illustrated by sketches of most of these fungi, as they appear under a lower power of the microscope when grown in gelatine.

† Two drops carbolic acid, one drop of chloride of iron, twenty-two ccm. water produce a violet color which becomes yellow on the addition of lactic acid even in very dilute form. I am not prepared to say that this is an absolutely sure test of lactic acid. It is the test used by Prof. Ewald and others for detecting lactic acid in the stomach, and is considered by them to be decisive. Of course the culture material itself must not give this reaction. Beef extract, for example, cannot be used as it already contains lactic acid. A few other substances also give this reaction, but none, I believe, which are likely to be produced in these cultures.

Thirteen were repeatedly cultivated on potato. Of these five grew rapidly, one in particular covering the whole surface of the section in forty-eight hours, and completely liquifying it to a depth of one to two mm., the liquified mass flowing off at the sides; the others develop very slowly, and attain only a limited growth. I am not able to say whether any of them possesses a diastatic action. It is, however, highly probable. Fifteen were cultivated on boiled white of egg. Four grew very rapidly, converting the egg in from two to four days into a semi-transparent pasty mass, which gradually disappeared. In the first two days large quantities of sulphuretted hydrogen were developed; later ammonia. Seven grew slowly on the white of egg, and four scarcely at all. The nourishment of the fungi naturally takes place at the expense of the albumen of the egg, which is converted into a soluble variety by the peptonizing action of the fungus. In two cases the presence of peptone could be detected in the dissolved mass, after separation from the albumen, by the biuret reaction, the organisms producing more peptone than they needed for their own consumption.

Some of them produce in fermentable solutions considerable quantities of gas. If a glass bulb, with a fine stem drawn out to a point, be filled with milk inoculated with No. 3, otherwise sterile, and kept at blood temperature, in twenty-four hours so much gas will be generated, that on breaking off the point, the whole contents of the bulb will be ejected with considerable force. The same effect may sometimes be produced, though not so markedly, when non-fermentable solutions are used. We may expect a similar action to take place when we seal up a dead pulp in a tooth, not only the gas itself escaping through the apical foramen, but, if its exit is hindered, ultimately forcing particles of the decomposing pulp through with it. The question suggests itself whether certain configurations seen in carious dentine may not owe their origin in part to the pressure of gas.

Four produce coloring matter, Nos. 5 and 7 in gelatine cultures some days' old forming brick-yellow masses, such as may be seen occasionally on the buccal surface of teeth which are not kept well cleaned.

On potato they appear bright yellow. Nos. 10 and 13 give the gelatine for a space one cm in diameter around the colony, a grass green tinge. I doubt very much whether either of these organisms has anything to do with the production of green stain.

All my attempts to isolate a chromogenic fungus directly from green stain having thus far failed, cultures of some of these fungi were made on dentine and enamel. Sections of dentine, when decalcified, neutralized, and soaked in saliva and sugar, formed, when kept in a perfect damp cell, a medium on which a considerable development took place, microtome sections of the dentine after two weeks showing a destruction of substance at the point of inoculation.

On sections of normal dentine the fungi in some cases appeared to maintain an existence until the organic matter exposed upon the surface of the section was consumed, after which the development ceased, while normal enamel, as might have been expected, formed about as good a culture substratum, as glass or porcelain.

A description of the cultures in milk, blood-serum, &c., is not necessary for our present purpose. Also experiments on animals have been made in too limited a number to lead to accurate results.

It is very plain, moreover, that a study of the pathogenic character of twenty-two fungi is out of the question. No. 19, which possesses peculiar interest on account of its similarity to the cholera-bacillus, was tested on mice, guinea pigs and rabbits. A small quantity from a pure culture injected into the abdominal cavity of mice, almost invariably caused death in a few hours. Guinea pigs and rabbits have thus far shown themselves proof against it, even when large quantities were injected into the duodenum (the *ductus choledochus* not being ligated). Experiments were made with a number of antiseptics in addition to those reported in the *Independent Practitioner* (Vol. V. page 283). Arsenious acid, contrary to the repeated statements of one of our journals, possesses an antiseptic power at least half as great as that of carbolic acid, and about twenty-five times greater than absolute alcohol. Chlorate of potassium, on the other hand possesses scarcely any available power whatever. Peroxide of hydrogen proved to be particularly active. These experiments are not yet completed, and will therefore be given in a separate paper.

The following practical conclusions appear to follow from the experiments above recorded :

1. A great majority of the fungi found in the human mouth are capable of producing acid from cane or grape sugar, and it is probable that, *with very few exceptions*, all can, when the proper conditions are presented to them. In nearly all cases which have been examined with special reference to this question, the acid has

appeared to be lactic. The acetic acid fermentation, which cannot go on at temperatures above 35° C. (Flugge), is out of the question in the human mouth, nor is there, as yet, any proof of the presence of more than minute traces of butyric acid.

2. In nonfermentable substances, the reaction will be found either neutral or alkaline ; in some cases considerable quantities of ammonia and sulphuretted hydrogen being produced. If, therefore, a decomposing pulp is sealed up in a tooth, its reaction cannot be acid, and caries cannot take place either in the pulp chamber or root canals.

3. Of considerable interest is the fact that the same fungus may produce an acid reaction in one substratum, and an alkaline in another. If, for example, No. 19 be cultivated in certain neutral non-fermentable substances, an alkaline reaction will appear. If then sugar be added, the reaction will in a few hours change to acid. In such a case we undoubtedly have two distinct processes going on at the same time ; first, the nutrition of the organism accompanied by the appearance of alkaline products, and secondly, its fermentive action accompanied by acid products. Ordinarily the latter so outweigh the former, that the resultant reaction will be acid. This is, however, by no means necessarily the case. On the other hand, conditions may readily be produced under which the resultant reaction will be neutral or alkaline, especially in the human mouth, where so many different fungi and so various conditions are present. In such a case the result would be to put a temporary check upon the advance of the decalcifying process ; in other words, upon the caries itself. In the case of particularly foul-mouthed persons the foulness itself may become a preventive of caries.

4. The possession of a peptonizing action by a large number of these fungi readily accounts for the solution of the decalcified dentine.*

* Not a little confusion has been introduced by attempted artificial definitions of putrefaction and fermentation. The idea that every change in nitrogenous organic substances must be of the nature of putrefaction is particularly misleading. A ferment of the nature of pepsine, which dissolves coagulated albumen, is widely distributed among the fungi of fermentation as well as putrefaction, and the schizomycetes in general required nitrogenous substances in some shape for their nutrition. The dissolution of the organic portion of dentine is by no means dependent upon the presence of putrefactive organs, but may be accomplished equally well by fermentation. As stated in

5. Any one of these fungi which can produce acid by fermentation of carbohydrates, or can dissolve the decalcified dentine, may aid in the production of caries, while one which combines both these properties, as many of them do, may alone bring about the phenomenon of dental caries. A solution of the dentine or enamel, without previous decalcification, cannot take place. The fact which I have so often affirmed, and which was denied by Milles and Underwood, that one continually meets with large tracts of softened, noninfected dentine, has been completely confirmed by Arkovy and Matrai. They say "the invasion extends, however, only to a certain depth, and only isolated tubules show a deeper invasion, sometimes to twice the depth, and reach the border of the normal dentine," the whole territory between the isolated tubules being free from invasion.

6. The comparative or complete independence of many of these organisms of the free access of air, renders their propagation within the dentine, or under fillings where softened not sterilized dentine has been left, an easy matter.

7. The fact that dentine and enamel form so exceedingly poor culture substrata for Schizomycetes, is an additional proof of the position that their attack upon the teeth is only secondary, *i.e.*, they owe their rapid development to the secretions, deposits, etc., of the oral cavity and not until the tissue of the tooth has undergone a certain change, first, decalcification, second, peptonization, can they adapt it to their nourishment. The decalcification is produced chiefly by acid, resulting from the action of the organisms upon certain carbohydrates in the human mouth, while the peptonization is produced, either by the direct action of the protoplasm of the organisms upon the decalcified dentine, or by the action of a ferment which they produce.

A knowledge of the properties of the fungi of the human mouth as given above, combined with a microscopic and chemical examination of carious tissue, and comparative studies of caries of living and dead teeth, appear to me to furnish a fair solution of the phenomena of dental caries. That other agents than those

previous papers, I never found a putrefactive organism in the deeper portions of carious dentine. Moreover, the acid reaction of carious dentine is highly unfavourable to the development of such organisms. I intend to repeat and extend my experiments on this point. The presence of putrefactive organisms, while it would accelerate the second stage of caries, could only retard the first.

of a parasitic nature are also often concerned, there can be no doubt. To say nothing of predisposing causes, an acid reaction of the oral secretions, acid medicines, acid foods, may give rise to caries at points which otherwise probably would have escaped.—(*Independent Practitioner*).

On the Existence of Masses of Epithelium round the Roots of Adult Teeth in a Normal State.*

By L. MALASSEZ.

(*Continued from page 377.*)

I HAD previously observed in certain tumours of the jaw, and even in the normal adult human gum, cellular masses closely resembling some of the epithelial products of dentition, and I had suspected that they must be the *debris* of these products. But it may be objected that in the first case these observations refer only to pathological conditions, and to anatomical appearances which are wholly superficial, and that it is impossible to deduce from them any conclusions as to the normal condition of the deeper parts. I shall, therefore, confine myself exclusively to speaking of those points which I have demonstrated in the deeper as well as the superficial parts of a perfectly normal human jaw, procured for me by the kindness of Dr. Galippe, who has been good enough to assist me in the preparation of it.

This lower jaw, after the soft parts, excepting the gums, had been removed, was sawn into pieces, each supporting a tooth with its alveolo-dental ligament—the so-called periosteum of authors—and a certain amount of bone. After being immersed for some days in alcohol at 90°, some of these fragments were placed in a one per cent. solution of chromic acid which was renewed from time to time, and the rest in a mixture of picric and nitric acids.

They were then all cut up, some in transverse, some in longitudinal and some in horizontal sections of from $\frac{1}{100}$ to a $\frac{1}{30}$ of a millimetre in thickness. This operation is easily effected rapidly and surely, by means of Roy's modified microtome. Most of these sections after being cleansed from the gum in water, were stained in picro-carmined glycerine. I have in this manner succes-

* Sur l'existence d'amas épithéliaux autour de la racine des dents chez l'homme adulte et à l'état normal (débris épithéliaux paradentaires), par M. L. Malassez.—(*"Arch. de phys."* 15 Février, 1885, No. 2.)

sively examined sections of two incisors, one canine, two premolars, and one molar. In the greater number of these specimens, little cellular masses were apparent in the thickness of the alveolo-dental ligament at its innermost part, in the neighbourhood of the tooth, and sometimes almost in contact with the cementum; nevertheless, some were found, though more rarely, in the most external part of the side of the maxillary bone and even in the neighbouring medullary spaces. These last must not be confounded with the myeloid, or giant multinuclear cells, which are met with in these regions. In transverse sections of the tooth they are found at all the points of the periphery. In longitudinal sections they occupy the whole length of the ligament, the deepest reaching to the extremity of the root, the most superficial continuing into the thick edge of the gum. It was these last that I observed before on abraded gums and that Serres considered to be tartar-secreting glands.

In order to ascertain their general disposition I made drawings in a light room with a low power ($\times 50$) of all the epithelial masses that I found in twelve preparations obtained from one single vertical slice of a second premolar, then I united all these drawings in one, taking as my mark in the transverse direction the edge of the cementum and in the vertical direction its upper extremity. In this manner I obtained the projection of all the masses contained in this slice of tooth. Now, they, collectively, form a long vertical row of points, of lines more or less short, rectilinear or curved, forming angles, sinuosities and even corkscrew curls, looking like a section of network sewn lengthways. And since these masses exist all over the periphery, they must be supposed to resemble a network surrounding the root of the tooth and extending into the edge of the gum, this network being very irregular, rather scanty, and probably altogether wanting here and there. The lengthened masses being mostly seen in vertical sections, it may be concluded that the meshes of the network are especially lengthened in the same direction as the tooth, like the vessels and nerves of the region; besides they are often met with side by side in the same ligamental interstices. They have, therefore, generally a different direction to those of the alveolo-dental ligamental bundles which are almost perpendicular to the tooth.

These masses present many varieties of form; some are perfectly circular and correspond either to sections of spherical masses or rather to transverse sections of cylindrical masses. Some are oval;

some are very lengthened in the form of more or less regular cords, some again are branched like racemose glands. Most of them are quite free in the midst of the connective tissue which surrounds them. Some, however, have a sort of special envelope. All the masses are full of cells; I have not met with any containing a clear cavity. The cells of which they are composed are generally polyhedral and rather small, as though shrivelled up; but in some large groups the cells of the periphery are sometimes cylindrical and are implanted perpendicularly in the external surface, whilst in thin slender groups they are more or less lengthened out, as though stretched in the same direction as the whole group. The polyhedral cells have a rather diminished amount of protoplasm, and consequently a relatively large nucleus. They have appeared to me to be quite contiguous, for I have been unable to distinguish between them either intercellular space or filaments of union with each other like those possessed by the epithelial cells of the malpighian or adamantine type. They stain a brownish-red in picro-carmin, much the same as epithelial cells. Nevertheless I have many times found in superficial groups in the gum itself, cells manifestly branched and staining yellow in picro-carmin.

It is evident that these cellular masses exactly resemble certain of the epithelial productions of dentition that we have noticed in the foetus; they have the same external forms, the same cellular composition, so much so, indeed, that viewed apart it would be impossible to distinguish them from each other. As to the differences that have been pointed out, most of them, not to say all, are easily explained. Thus the cellular masses occupy a much more considerable area in the adult than in the foetus; they penetrate deeper and no longer correspond in situation with the crown but with the root of the tooth; is not this the simple natural consequence of the development of the maxillary bone and of the irruption of the tooth? The deepest masses will have been buried in the neighbourhood of the extremity of the root, whilst the rest will have been separated, stretched out and dragged away by the extension of the tissues which surrounded them. The shrivelling up and atrophy of the cells that compose the masses are in the same manner due to compression by the surrounding tissues which were in active growth, whilst they themselves were condemned to rest. Thus then, the differences that exist between the cellular masses of the adult and those of dentition, explain themselves so

naturally that they would tend to confirm rather than to contradict our hypothesis.

Perhaps it will be thought extraordinary that these masses should have been able to resist all the disturbances that accompany dentition and then remain so long in the alveolus without atrophying. But it must not be forgotten that during the period of dentition they have first been in full formative activity, and that then they must have preserved, for some time at least, a certain degree of vitality which has enabled them to resist the pressure of the neighbouring tissues. Then, the dentition finished, they are in a region where, as I shall show, they are not subjected to any pressure worth speaking of, seeing that there are nerves in this situation which could not endure such pressure, moreover there are blood vessels and loose connective tissue that would weaken or counteract it if there were any such tendency.

And besides, other examples of like persistences are not wanting in the economy. In short there is every reason to suppose that the cellular masses that I have found in the alveolo-dental ligament of the adult are nothing but the *debris* of the epithelial productions of dentition.

(To be concluded.)

NEW INVENTIONS.

Mr. E. J. Ladmore's Instruments for Plastic Filling.

WE received some time since from Messrs. Ash a set of instruments for plastic filling, made from patterns designed by Mr. E. J. Ladmore, of Bradford, which will, we believe, be found to supply a want which must have been felt by many dental surgeons. The set consists of eight instruments, seven of these being double-ended. Nos. 1 to 4 are pluggers, differing in curve and in the diameter of the tuberosity; Nos. 5 and 6 are smooth spatulas or burnishers; No. 7 an amalgam carrier and burnisher, and No. 8 a bevelled spatula. Their distinguishing character consists in the curves given to each, by which the operator is enabled to carry the plastic material into cavities in any position without having his view obstructed, whilst the spatulas passing between the walls of every tooth at right angles, also facilitate the operation.

Mr. Ladmore has evidently bestowed much thought and care on the preparation of the designs, and great credit is due to Messrs. Ash for the manner in which these have been carried out.

ANNOTATIONS.

FROM the provisional programme which we have been enabled to publish at page 389, it will be seen that the promises held out in our leader on the Cambridge Meeting in our June issue were not exaggerated. It is now suggested that the admirable accommodation afforded by the Union Debating Room, should be utilised by setting the galleries apart for the use of ladies during the reading of the Presidents' addresses. How far this will meet the views of the members remains to be seen; but as there will be a meeting of the Representative Board before the final programme is drawn up, we are quite satisfied that the matter will receive due consideration. At first sight the proposal seems a good one; but as it will establish a precedent, and as the rooms in which our future meetings must be held may not all possess equal facilities for such an arrangement, a difficulty may arise on this point.

A POSTCARD with various enquires will be sent to every member of the Association shortly before the meeting, and it is earnestly hoped that all who intend to be present will be courteous and considerate enough to give notice of their intention by returning the card duly signed to the Hon. Local Secretaries.

AFTER the success of the Firth of Forth excursion, which terminated the meeting at Edinburgh last year, we are inclined to think that the proposed water party is likely to be popular. Those who prefer visiting localities in the neighbourhood of Cambridge will still be at liberty to do so; but hurried excursions by train, where people are necessarily divided into parties of eight or ten persons during the journey, do not afford that opportunity for social intercourse which is to be found during a pleasant ride on a well-found river barge, where ladies and gentlemen may mingle freely, and extend and confirm friendships and acquaintances, so frequently formed at our annual gatherings. Such an excursion also

enables our members to take a deliberate and courteous farewell of each other unattainable by any other arrangement we know of.

WE understand that, owing to the Annual Dinner being held in a College Hall, some difficulty has arisen regarding the price of the dinner tickets. It has been the practice hitherto to try to discriminate between those who take wine and abstainers, by making a difference in the charge for dinner tickets, but under the present exceptional circumstances this will not be so easily accomplished as hitherto, and it is suggested that the uniform price of one guinea should be charged to cover all expenses. Considering that the sum charged includes the hospitality extended to guests, and also the music and other incidental expenses inseparable from all such entertainments, we hope that this circumstance will not detract from the number of those who will dine together on the evening of the second day of our meeting.

THE difficulty of meeting the different requirements of members in respect to the price of dinner tickets has been with us ever since the commencement of our annual meetings, and also on minor, although equally important occasions. The matter appears simple enough to the casual observer, but to those who have to handle it closely, it assumes a very different aspect, and it is an open secret that more than once the liberality of some of our members has been rather unfairly taxed to make accounts square. Perhaps if members would give early intimation of their intention to be present, and hold themselves responsible for the price of the dinner ticket, whether present or not, the difficulty might be partly solved, but our present arrangement or want of arrangement, is most unsatisfactory.

Dr. STORRAR complains that the report of his speech at the Medical Council, with reference to the University of Pennsylvania, which appeared in last month's Journal was altogether incorrect. He did not say that the letter from which he quoted was written by Mr. C. S. Tomes, and as a matter of fact it was not. We have also received a letter from Mr. Chas. Tomes himself, stating that he had not either said or written what the reporter has attributed to him. The discussion seems to have been carried on rapidly in

THE June number of the *Archives of Dentistry* contains a very carefully written and instructive paper on "Cocaine in Dental Surgery," by Dr. John S. Marshall, of Chicago, read before the Section of Dental and Oral Surgery of the American Medical Association. In it he gives in a tabular form the results of experiments made with the hydrochlorate, the oleate, and the citrate of cocaine. From these he concludes that the citrate is much more reliable as an anæsthetic or obtunder of sensitive dentine than either of the other preparations; it appeared also to act much more promptly. In several cases of sensitive dentine the citrate was used with good effect after the hydrochlorate and oleate had failed. These conclusions are, we believe, quite in accordance with those arrived at as the result of similar trials made in this country.

AT a meeting of the Board of Examiners of the Royal College of Surgeons of England held on the 24th ult., the following gentlemen were admitted Licentiates in Dental Surgery, viz.: Messrs. Paul Charles Albert Bardet, Geneva; George Goring Champion, Manchester; Walter Joseph England, Hampstead; Frank Hampton Goffe, Birmingham; Alexander John Jones, Maida Vale; George Henry Mugford, Exeter; Frederick Snell Peall, Brixton Rise; Arthur Bernard Robinson, Liverpool; Charles Robert Smith, Leamington; Hugh Lloyd Williams, Llanberis; William Maurice Gabriel (M.R.C.S., 1884), Gloucester Gardens; Alfred Sextus Mackrell (M.R.C.S., 1884), Queen Anne Street. Four candidates we referred to their studies.

THE *Archives of Dentistry* for last month gives particulars of the death of a Massachusetts dentist from the self-inhalation of nitrous oxide. It may be said at once that the man who performs such an act must be either mad or drunk, and in this case the evidence seems clearly to show that the practitioner was in the latter condition. Dr. Dudley, who writes the notice, mentions having once found a student in an insensible condition, with the inhaler in his mouth and the gas turned on. He just "wanted to see what it was like," and had he not been discovered at the moment the experiment would certainly have proved fatal. No words are sufficiently strong to express the criminal folly of such a freak.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

The University of Michigan.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—I trust you will allow me space to reply to the criticisms in your last issue upon the Dental College of the University of Michigan.

Not knowing what engagements the faculty of that institution made with the British Medical Council, I cannot say whether it has kept them or not; but, having been a student of the institution in question for two years, I can positively assert that it does more than act up to the announcements in its calendar, and that its requirements, saving in the matter of apprenticeship, do not in reality fall short of the requirements of the Royal College of Surgeons of England.

When I applied for admission to the school in October, 1882, I was informed that an entrance examination was compulsory, that three years must be devoted to study, but that one year's tuition under a qualified practitioner, would be accepted in lieu of one course in college. At that time the courses were six month terms. I found, however, that the concession of one course for one year's tuition was much less than it appeared at first, because to get through the necessary work, and complete the required class attendance, I, in common with all the other two years' men, had to work in the dissecting-room during the two weeks' recess at Christmas, and furthermore, after the six months' course was completed at the end of March, we had to stay in College until the first week in June to do the required work in qualitative analysis and microscopy, so that our first year was practically a nine months' course.

As regards the number of passes being suspiciously great, let me say that of the thirty-four students who entered with me on the two years' course in 1882, the names of sixteen only appear in the list of graduates in 1884.

Then as to the College becoming a gate to those wishing to practise in England facts speak for themselves. It does not advertise in the *Cosmos*, the only American dental journal having an extensive foreign circulation. In the eleven years the school has existed, only three men have graduated, who have gone direct from England. At the present moment there are, as far as I can ascertain, not more than four Michigan graduates practising in Europe. The faculty has again and again declared that no person shall be allowed to graduate who has not fulfilled the curriculum of the school. In proof of this, a gentleman presented himself in 1882, with a dental diploma granted by the Royal College of Surgeons of Ireland, he had to serve his two years under

exactly the same conditions as myself, and did not graduate till 1884. The best guarantee, however, of the standards being maintained is to be found in the facts that the Dental College, like all the other departments of the University of Michigan, is a State institution, supported by an annual subsidy and endowments, the fees are nominal, and the teachers are paid fixed and handsome salaries by the State, and are entirely independent of the commercial success of the College.

In conclusion, let me state a fact you will no doubt regret not to have known at the time you penned the annotations to your last issue. The "Calendar of the University of Michigan for 1884-1885," announces that, while maintaining all their former requirements, the course in the Dental College has been extended to nine months, so that the school year begins on the 1st of October, and ends on the last Thursday of June.

Trusting that you will in justice give the same publicity to this letter that you have to the remarks of Dr. Storrar,

I have the honour to be,

Yours faithfully,

CHARLES M. CUNNINGHAM,

D.D.S. Univ. of Mich.

Member B.D.A.

June 26, 1885.

APPOINTMENTS.

MR. CHAS. SIMS, L.D.S.Eng., has been appointed Lecturer on Dental Surgery, at Queen's College, Birmingham.

Mr. W. T. ELLIOTT, L.D.S.Edin., has been appointed Lecturer on Dental Mechanics in the Dental Department of Queen's College, Birmingham.

MR. STORER BENNETT, F.R.C.S. and L.D.S.Eng., L.R.C.P.Lond., has been appointed Dental Surgeon to the Dental Hospital of London, vice Mr. S. J. Hutchinson, resigned.

MR. WILLIAM HERN, M.R.C.S. and L.D.S.Eng., has been appointed Assistant Dental Surgeon to the Dental Hospital of London.

TO CORRESPONDENTS:—

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &c.

HOSPITALS.	DAY AND HOUR OF ATTENDANCE.			ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewbank ; Mr. Paterson ...	Mr. Mackrell ; Mr. Ackery ...	Tuesday and Friday, 9 a.m. ...	Mr. Mills.
Charing Cross ...	Mr. Fairbank ...	... ..	Monday, Wednesday & Friday, 9 a.m.
St. George's ...	Mr. Winterbottom ...	... ..	Tuesday, 9 a.m. ...
Guy's ...	Mr. Henry Moon ...	... ..	Tuesday and Thursday, 12.30 noon ...
King's College ...	Mr. S. H. Cartwright ...	... ..	Tuesday and Friday, 10 a.m. ...
The London ...	Mr. Ashley Barrett ...	... ..	Tuesday, 9 a.m. ...
St. Mary's ...	Mr. Howard Hayward...	... ..	Wednesday and Saturday, 9.30 a.m. ...
Middlesex ...	Mr. Bennett ...	... ..	—
St. Thomas's ...	Mr. Ranger ...	Mr. C. Rogers ...	Tuesday,	
University College...	Mr. Hutchinson...	Mr. Chas. Truman ...	Wednesday, 9.30 a.m. ...	
Westminster ...	Dr. Walker ...	Mr. Smale ...	Wednesday and Saturday, 9.15 a.m. ...	Mr. Bailey. Mr. Bird. Mr. Mills. Mr. Braine. Mr. Bird. Mr. Bailey. Mr. Glassington. Mr. Tyrrell. Mr. Hewitt. Dr. Winslow. Mr. Tyrrell. Dr. Winslow.
London Dental ...	Mr. David Hepburn ...	Mr. Hern ...	Monday, 9 a.m. ...	
" "	Mr. R. H. Woodhouse...	Mr. Arthur S. Underwood ...	Tuesday, 9 a.m. ...	
" "	Mr. Gregson ...	Mr. Claude Rogers ...	Wednesday, 9 a.m. ...	
" "	Mr. Storer Bennett ...	Mr. George Parkinson ...	Thursday, 9 a.m. ...	
" "	Mr. Henry Moon ...	Mr. Lawrence Read ...	Friday, 9 a.m. ...	
" "	Mr. F. Canton ...	Mr. Truman ...	Saturday, 9 a.m. ...	
National Dental ...	Mr. Henri Weiss ...	Mr. Willoughby Weiss ...	Monday, 9 a.m. ...	
" "	Mr. Alfred Smith ...	Mr. Giles Bradshaw ...	Tuesday, 9 a.m. ...	
" "	Mr. G. J. Williams ...	Mr. Marcus Davis ...	Wednesday, 9 a.m. ...	
" "	Mr. A. F. Canton ...	Mr. H. G. Read ...	Thursday, 9 a.m. ...	
" "	Mr. T. Gaddes ...	Mr. G. D. Curnock ...	Friday, 9 a.m. ...	
" "	Mr. Harry Rose ..	Mr. W. R. Humby ...	Saturday, 9 a.m. ...	

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, July 17th, at 5.30 p.m.; Committee of Management, July 20th, at 5.30 p.m.; Medical Committee, July 16th, 5.30 p.m.
British Dental Association.—Business Committee, Thursday, July 23rd, at 5.30 p.m.; Representative Board, Saturday, August 8th, at 3 p.m.; Publishing Committee, July 30th, at 5.30 p.m.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL OF THE BRITISH DENTAL ASSOCIATION

(Mr. Verrier's name has been accidentally omitted from the Programme.)

purpose of each Bill was the general improvement of the greater completeness in the education of the rank and file of the medical profession. Registration was to be permitted only on condition of the applicant producing a qualification which embraced the three subjects of medicine, surgery, and midwifery. At present a person presenting to the Medical Registrar a qualification in surgery, or in medicine, or the qualification of an apothecary, granted by either of the medical corporations enumerated in the Medical Act of 1858, can claim registration, and thereby become entitled to practise medicine, or any branch thereof

as though his qualification was general and complete in the three enumerated divisions of the general subject.

The failure of the Government to effect changes upon the advantage of which, from a public point of view, no difference of opinion existed, was due to the presence in the Bills of other issues, affecting the corporations to their prejudice, and respecting which there were great differences of opinion and active contention. But the improvement—reform it may be called—which has not been effected by statute, has to a considerable extent been brought about by the action of the medical corporations themselves.

Under Section 19 of the Medical Act of 1858, these same medical corporations are empowered to unite for the purpose of a common and inclusive examination, and, when so united, they may decline to hold separate qualifying examinations in the subjects they severally represent. This union, so far as a mere qualifying examination for the purpose of registration goes, has been in great part brought about.

In England, the Colleges of Physicians and Surgeons have so united, and the Society of Apothecaries now decline to give their qualification unless the candidate presents a qualification in surgery, or submits himself to an examination in surgery at their hands.

In Scotland, the Colleges of Physicians and of Surgeons, and the Faculty of Physicians and Surgeons of Glasgow, have united under the quoted section. In Ireland, attempts at a union between the medical corporations have been made, and it is hoped that they will not long be distinguished from the other medical corporations by their differences.

So it happens that although the registration upon a single qualification cannot be refused by the Registrar, the student, unless he goes to Ireland, cannot get a single

qualification upon which to demand registration. We may confidently look forward to the legislature removing this state of inconsistency without unreasonable delay.

Coincidentally with the union for medical examinations, the curriculum has been strengthened and extended, and the Medical Council at its last sitting recommended certain changes, all tending in the direction of a more perfect professional education—a recommendation which hardly admits of refusal by the medical authorities, each of which is represented on the Council.

The bearing of these necessary advances in general medical upon dental education we propose to resume more minutely on a future occasion, in respect to the greater or less ease with which a medical qualification may be gained by dental licentiates.

But of this we may feel assured, that the progress of medical education will not be hindered in order that dental students may acquire a medical diploma; nor will dental education be lowered in order that a person whose life will be spent in the practice of dental surgery may be competent to deliver a woman in child-birth, or to perform any other operation with reasonable facility, the performance of which can be gained only by the expenditure of time, with suitable opportunity, at the cost of necessary dental training. As matters stand at present, the dental student who has fully complied with the terms of his curriculum, enters upon practice with a fuller and more complete knowledge of his subject than he could have attained had his time been divided up between the many special subjects embraced in general practice, to each of which he, even if greatly favoured with unusual opportunities, could not have given more than a very divided attention. He may justly claim to have received a more perfect education, while still a student in his special subject, than he would have attained

in the special subjects of medical practice, for he starts with a sound knowledge of the general principles of surgery, and has practised and become familiar with all the operations and details of practice his future career will require of him, a paramount advantage which must be firmly held, at all costs, through the changes medical education must undergo.

Heretofore the medical and dental student proceeded side by side upon the same lines, diverging in the course only when a knowledge of practice had to be acquired. The life subject of dental surgery having been mastered, the point of divergence may be returned to, and the line leading to a surgical qualification be followed with advantage. The pass knowledge of surgery, to the dental practitioner, is but the unused sword rusting in its scabbard—a weapon, nevertheless, worth the holding. How the recent changes in the course of medical education may affect the dental student, we hope to be able to point out ere long.

August 27th, 28th, and 29th.

THE official programme which has been issued by the Hon. Sec. of the Association, giving in detail, as closely as human prescience will allow, the arrangement of the proceedings at the Annual Meeting about to be held at Cambridge, seems to indicate a healthy state of activity on the part of the members, and an increasing willingness on the part of many to take an active part in the proceedings, and thereby contribute to the success of the gathering, and through this success to add to the credit of the profession generally.

When the resolution was passed at Edinburgh, nearly a year ago, appropriating three days to the business of the

Association, it was thought by some that the amount of work necessary to fill up the time would not be forthcoming. Events, however, have shown that those who took the opposite view were correct in their estimate of the increasing interest and favour with which the efforts of the Association for the scientific and social development of the profession are being regarded by the members of the profession generally. This is a healthy sign, and we may be quite sure that only in proportion to the legitimate efforts we make on our own behalf are we likely, as a body of professional men, to rise in public estimation and to obtain a fair recognition of our claims as an educated profession.

It must not be forgotten that it is as it were but yesterday since we emerged from the condition of a profession which was one in name only, and that it is only by patient and self-sacrificing effort that we can hope to make the public comprehend this. We cannot expect the public to understand, or to care to understand, the peculiarity of our position by direct methods, and so it is only by the movements of the Association, carried on without the aid of, and without regard to public opinion, but yet in the full light of day, that we shall be able to attract public attention. True, we have succeeded in our previous Annual Meetings, and to all appearance in the one so near at hand, in enlisting the practical sympathy in the localities in which they may have been held, of all those who take an interest in education and progress, and who know how important it is that the public should be supplied with proper professional assistance, in matters on which they are unable to form a sound opinion for themselves until it has been purchased by an experience which may have proved at once expensive and disastrous. But such persons are only a very small part of the community, and it is only by continued and well-directed efforts that we shall be able to carry out this great object.

It may suit many members of our profession to shut their eyes to this, and, ostrich-like, to bury their heads in the dust of their own immediate circle, and say that they are quite content with themselves, and that they, judging from the consideration shown to them by many friends, are content with their professional position. But they should not forget that there is a possibility of their being mistaken, and that the kind partiality of friends is due perhaps to personal influence, apart from any professional considerations whatever. The fact is, that the profession has yet a long way to travel before the designation, Dentist, shall receive that consideration which belongs to other professional titles. There are dentists and dentists, and we have to tell a long bead roll of those who still claim that title only to abuse and degrade it; we have had to carry them with us in name in the course of our progress, and as heretofore, have had to recognise the fact that "a man's enemies are those of his own household."

One of the objects of the Association is to make it clear to the public in an incidental way, as it were, without trying to lecture them into it, that Dentists may be classified as those who are truly such, and those who assume to be such, and the Annual General Meetings are certainly the most likely methods of achieving this most desirable end. Branch meetings are, no doubt, great and important adjuncts, but after all the Annual General Meeting is, and must always be, the most powerful engine within our reach whereby we can influence and guide public opinion. We, therefore, hope that the long and varied programme which has been issued may draw many new members to the Association, and also induce many of our members to attend, even at the expense of an amount of self-denial which could not be expected from them on a less important occasion.

ASSOCIATION INTELLIGENCE.

Meeting of the Representative Board.

A MEETING of the Representative Board was held at 40, Leicester Square, on Saturday last, the 8th inst., Mr. J. S. Turner, Vice-President, in the chair. There were present : Messrs. Thos. A. Rogers, H. Champion, A. J. Woodhouse, Thos. Gaddes, F. Weiss, Oakley Coles, G. A. Ibbetson, Thos. Underwood, James Parkinson, C. Sims, T. Mahonie, R. W. White, J. Walker, G. Cunningham, and F. Canton, Hon. Sec.

The minutes of the previous meeting were read and confirmed. Details of the approaching Cambridge meeting were considered and arranged as far as possible. A case of infringement of the Dentists Act was considered, and instructions given regarding the same. Mr. Oakley Coles gave notice of motion in the name of Mr. Hutchinson, that at the next meeting he would move that the Annual Meeting in 1886 be held one week earlier in August. A communication from the Scottish Branch, and one from the Central Counties Branch, were laid before the Board.

The Treasurer reported the balance at the Bank was £612 1s. 1d., and that about 140 members were in arrears with their subscriptions.

The following gentlemen were elected members of the Association, viz : Messrs. Albert J. Kutz, D.D.S., L.D.S.I., 32, Wimpole Street, W. ; George W. Field, D.D.S., 23, Park Street, Park Lane ; and Henry Freeman White, L.D.S.Eng., 34, Bruton Street, Berkeley Square.

The Annual General Meeting.

THE Annual General Meeting of the Association will be held in the Debating Hall of the Union Society, and in the University Museums, Cambridge, on Thursday, Friday, and Saturday, the 27th, 28th, and 29th inst., under the Presidentship of Richard White, Esq., L.D.S.Eng., of Norwich.

The following will be the order of proceedings :—

THURSDAY, AUGUST 27th.

9 a.m. Meeting of Representative Board in the Committee Room of the Union Society.

10.30 a.m. The Annual General Meeting for Business (open to Members only) will assemble in the Debating Hall of the Union Society. At the termination of the Association Business, the Meeting will be open to visitors, and the President's valedictory address will be read.

Richard White, Esq., L.D.S. Eng., the President Elect, will then take the Chair and deliver his Address. Following the Address, Papers will be read and discussed.

LIST OF PAPERS PROMISED.

"Excision *versus* Extraction," by C. Spence Bate, F.R.S., L.D.S. Eng.

"On First Permanent Molars," by R. W. White, M.R.C.S., L.D.S. Eng.

"Dental Specimens in the Cambridge Museums," by Dr. Hans Gadow.

"Compulsory Attention to the Teeth of School Children," by W. M. Fisher, L.D.S. Eng.

"Hopes and Fears of Dentistry," by J. Oakley Coles, L.D.S. Eng.

"Section Cutting of Dental Tissues," by T. Charters White, M.R.C.S., L.D.S. Eng.

"The Existence of Electric Currents in the Mouth," by Geo. Cunningham, B.A., D.M.D.

"The Necessity for Teeth after Fifty Years of Age," by S. J. Hutchinson, M.R.C.S., L.D.S. Eng.

"Capping *versus* Extraction of Pulp," by J. Walker, M.D., M.R.C.S., L.D.S. Eng.

"Antiseptics in Dental Surgery," by F. Harrison, M.R.C.S. Eng., L.D.S. Edin.

"Some Points of Interest in Dental Anatomy," by A. S. Underwood, M.R.C.S., L.D.S. Eng.

1 p.m. Adjournment for Lunch.

2.30 p.m. Reading and Discussion of Papers continued.

8.30 p.m. Conversazione and Reception of the Members of the British Dental Association and Friends by the President and Council of the Eastern Counties Branch in Peterhouse College and Grounds.

FRIDAY, AUGUST 28th.

9 a.m. Annual Meeting of the Dental Benevolent Fund in the Debating Hall.

10 a.m. Clinics and Demonstrations in the University Museums (Biological Laboratory).

Annual Museum and Exhibition of Dental Inventions and Appliances in the University Museum.

The following is a list of the demonstrations promised :—

"Herbst Method of Gold Filling," by Storer Bennett, F.R.C.S., L.R.C.P., L.D.S.Eng.

"Filling by Herbst Method with the aid of new Matrix and Clamp," by George Brunton, Esq.

"Adhesive Gold Filling with smooth round ended pluggers," by F. H. Balkwill, L.D.S.Eng.

"Gold Filling," by W. St. Geo. Elliott, M.D., D.D.S.

"Gold Filling," by C. Claude Rogers, D.M.D., M.R.C.S., L.D.S.Eng.

"Demonstration with Electric Mallet," by J. J. Andrew, L.D.S.Eng.

"Gold Filling," by Walter Browne, L.D.S.I.

"The application of Hammond's Wire Splint for Fractured Jaws," by Newland Pedley, F.R.C.S.

"The attachment of a Ferrule Pivot," by Alfred Jones, jun., Esq.

"The attachment of a gold crown and a Demonstration on cast metal plates," by C. M. Cunningham, D.D.S.

"Gold Filling with Electric Mallet," by G. W. Field, D.D.S.

The following short papers will precede demonstrations :—

"On Cast Metal as a base," by C. M. Cunningham, D.D.S.

"Further experiences with Herbst's method of Gold Filling," by Storer Bennett, F.R.C.S., L.R.C.P.Lon., L.D.S.Eng.

1 p.m. Adjournment for Lunch.

2 p.m. Papers will be read and discussed in the Debating Hall of the Union Society.

4 p.m. Garden Party given by the President of the British Dental Association to the Members and their Friends in the Grounds of Downing College.

7 p.m. Annual Dinner of the Association in the Hall of Gonville and Caius College.

SATURDAY, AUGUST 29th.

10 a.m. Any Papers or Demonstrations, left over from the previous days, will be continued.

A Water Party and Luncheon (subscription, ladies 7s. 6d.,

gentlemen 10s.) on the Cam to Clayhithe will be arranged if a sufficient number of Members send in their names before noon on Friday, 28th August.

Visits to Colleges and Museums.

The above arrangements may have to be altered according to the time at the disposal of the Committee.

SPECIAL NOTICES.

The price of the Dinner Ticket is One Guinea, which includes Wine, and may be obtained of the Hon. Local Secretaries, Messrs. Cunningham and Rhodes.

Hotels—"Bath," 3, Benet Street; "Bird Bolt" (temperance), 30, St. Andrew's Street; "Bull," 64, Trumpington Street; "Castle," 38, St. Andrew's Street; "Hoop," 4, Bridge Street; "Prince of Wales," 20, Sidney Street; "Red Lion," 6, Petty Curey; "University Arms," Regent Street.

Places of Interest—Addenbrooke's Hospital, Trumpington Street; Fitzwilliam Museum, Trumpington Street; Museum of Archæology; Geological Museum, The Observatory (half hour's walk); Senate House; University Library; The Colleges; The Museums and Lecture Rooms—Zoology and Comparative Anatomy; Botanical Museum and Herbarium; Mineralogical Museum; Museum of Mechanism, and Workshops of Professor Stuart; Optical and Astronomical Lecture Room; Museum and School of Human Anatomy.

FREDERICK CANTON,
M.R.C.S., L.R.C.P.Lond., L.D.S.Eng.
Hon. Sec.

The Art Exhibition and Dental Loan Museum at Cambridge.

MEMBERS are reminded that all objects for the Art Exhibition (see JOURNAL for March, p. 189), as well as models and specimens for the Dental Loan Museum, should be addressed to the Hon. Local Secretaries (Messrs. Cunningham and Rhodes) at the New University Museum, Cambridge, and must be sent in not later than the 20th inst., in order to allow time for their proper arrangement.

Western Branch.

THE Annual Meeting of this Branch will be held at the rooms of the Woolhope Naturalists' Field Club, Free Library, Hereford, on Monday, the 24th inst., under the presidentship of Mr. G. C. McAdam, L.D.S.Eng., of Hereford.

The following will be the order of proceedings :—

9.30 a.m.—Meeting of Council.

10.30 a.m.—General Meeting of Members for the transaction of business, President's Address, reading and discussion of papers.

2 p.m.—Adjournment for luncheon.

3 p.m.—Business of meeting resumed.

7 p.m.—Dinner at the "Green Dragon" Hotel. Tickets 6s. 6d. each. Members intending to be present are requested to make early application to Mr. McAdam, King Street, Hereford.

Demonstrations have been promised by Mr. F. H. Balkwill, of Plymouth, on "Adhesive Gold Filling with Smooth-pointed Instruments;" and by Mr. J. T. Browne-Mason, of Exeter, on the "Herbst method of stopping teeth." Communications have been promised by Messrs. Apperly and Hellyar, and members are invited to introduce subjects for discussion. There will be an exhibition of models, instruments, &c.

On Tuesday, the 26th, it is proposed (weather permitting) to make up a party to go by water from Ross to Monmouth, starting at 9.45 a.m. from Hereford by train to Ross, and thence by boat down the Wye, passing Goodrich Court and Castle, Symonds Yat, the Seven Sisters Rocks, &c., some of the most beautiful scenery of the Wye. To make satisfactory arrangements, it will be necessary for members wishing to join the party to send in their names to Mr. McAdam a fortnight before the date of the meeting.

Hotels in Hereford are the "Green Dragon," "Mitre," "City Arms," all in Broad Street. Early application should be made for beds.

Subscriptions, due August 1st, should be paid to the Honorary Treasurer, J. T. Browne-Mason, 6, Southernhay, Exeter. Gentlemen desirous of becoming members should apply to the Honorary Secretary of the Branch, Henry B. Mason, 3, Bedford Circus, Exeter.

ORIGINAL COMMUNICATIONS.

Artificial Separation of the Teeth.*

A. AS A MEANS OF FACILITATING FILLING.

B. AS A PERMANENT OPERATION IN THE TREATMENT OF DECAY.

By LEONARD MATHESON, L.D.S.Eng. ; Manchester.

I SHOULD feel that I owed you an apology for allowing my name to appear on the programme of to-day's proceedings as the reader of a paper on such a time-worn subject as the separation of the teeth, if I did not consider that the responsibility was shared by our secretary. I requested him to put my name down, not as the reader of a paper, but simply as the opener of a discussion. I cannot pretend to offer you much, or anything, that is original or novel; but I hope possibly to be the means of eliciting from others their opinions and modes of practice by stating my own as clearly and concisely as possible.

I may say then that I consider that in the separation of teeth one from another (either for a few days, or permanently), there lies one of the most efficacious means of dealing with dental caries; though at the same time it is a means which must be employed with due discrimination and only after careful consideration of the varying conditions in which it may be called for.

The very fact that separation of the teeth may be, and often is done in a very indiscriminate and careless manner, producing anything but satisfactory results, is one of the reasons which have induced me to bring the subject forward for discussion; for I should like to do what little I can towards removing the discredit which is often unjustly cast upon the practice as a whole; instead of upon the careless abuse of it.

(A) First, then, I deal with the separation of the teeth as a temporary measure, employed for the purpose of giving the operator sufficient room for the accurate and thorough preparation and filling of approximal cavities. In this first division of my subject I shall confine my remarks to the separation produced by pressure—that is temporary separation—as distinguished from the permanent separation produced by the excision of actual tooth substance.

In a recent work of great practical ability, the practice of press-

* Read at the Annual Meeting of the Midland Branch, at Nottingham, on April 17th.

ing the teeth apart, in order to obtain additional room for operating, is spoken of as "cruel and unprofessional." This is a heavy charge to bring against any method of work, and it is a charge which is too grave to be left unanswered.

A practice which involves unnecessary pain is a cruel one, and it goes without saying that such a practice is unprofessional, for it is surely the very essence of all that is professional—in the ethical application of the term—that the object to be aimed at should be the permanent comfort and well-being of the patient, at the cost of as little discomfort and pain as possible. The real questions at issue then are, what pain is necessary? And again, whether, if pain has to be inflicted at all, one kind of pain is not preferable to another?

Without disputing the fact that the practice of wedging often gives rise to a good deal of suffering, I maintain that there are not a few cases in which the suffering is necessary to the performance of a perfect operation, and I also maintain that even the pain of displacing a tooth from its natural, and of filling it in its abnormal position, is preferable to the pain and annoyance of having the tooth filled a second time, when, owing to insufficient space, the operator has not given his work a fair chance of success. And I hold thus strongly the necessity for temporary separation, though I constantly and invariably make use of the mirror in order to work as much as possible from the palatal aspect of the front teeth, and though I advocate very strongly the value of the chisel, file, and disc, for the thorough separation of the lingual surfaces. But I maintain further, that the actual operation of filling cavities in closely adjoining surfaces, apart from the consideration of after consequences, is in a great many cases rendered easier for the patient, as well as for the operator, by the previous separation of the teeth, a great deal depending, however, both on the mode of separation employed, and on the mode of filling adopted.

Let me enumerate the cases in which I consider that temporary separation is a necessary preliminary to perfect work in the filling of approximal cavities, premising, however, that I scarcely ever separate in this way teeth posterior to the canines.

I almost invariably separate the teeth in order to obtain more room: 1. Where the cavity to be reached is very small. The cavity may be near either the cervical or the cutting edge. 2. Where, though the cavity be of considerable size, and for the most part easily accessible from the lingual aspect, the cervical or

cutting edge (or both) of the tooth operated on, are so closely in contact with the adjoining tooth as to make it a matter of extreme difficulty to fill successfully the part of the cavity near the cutting edge, or to finish with absolute accuracy the cervical margin of the filling. 3. Where the cavity is on a surface which overlaps, or is overlapped by another tooth.

Such are the conditions under which I consider a good space* between the teeth essential to the performance of satisfactory work, but I frequently separate for cavities which do not strictly come within this category, especially in the case of the weak teeth of young people between the ages of twelve and twenty-five.

In weak teeth the enamel frequently presents a soft, chalky surface extending for some considerable distance from the margin of a cavity, and although the cavity itself may be excavated with comparative ease, and the filling inserted in absolute contact with every point of the margin without separation, it is often a matter of extreme difficulty, not to say impossibility, unless there is a space between the teeth, to assure oneself that all this soft tissue has been thoroughly and entirely removed. And further, in teeth of a weak character, it is of the utmost importance that room enough should be obtained for fillings to be finished and trimmed in the nicest and most thorough manner; a process made much more difficult than usual, when with frail cavity margins every stroke of the file and burnisher have to be most carefully directed.

The usual method that I employ for separating teeth is as follows: I insert between the teeth one thickness of very narrow tape, or two if possible, and then I direct the patient to insert an additional fold of tape each day, until there are at least four folds. On the third or fourth day I remove the tape, dry very carefully the surfaces of the teeth, and fill up the space with gutta percha; then after another three or four days I operate.

The tape causes very much less tenderness than either rubber or wood, and it is easily applied by the patient. The gutta percha is invaluable; it does not exercise any further pressure upon the teeth, but by keeping them steadily in their new position it rapidly diminishes their tenderness, so that after four days there is, in the majority of instances, but very little soreness left. Very occasionally, when the shape of the teeth make it difficult for the patient

* A sixteenth of an inch is not too much.

to apply successive folds of tape, I use rubber, and in rare cases I apply a piece of compressed wood when neither tape nor rubber can be made to keep in place.

In operating, where there is room between the cavity and the gum, I generally insert a wooden wedge between the teeth, which, by giving them support, reduces to a minimum any soreness that may yet remain.

Between the bicuspid and molars, where the cavities to be treated are of any size, either wool or mastic or soft gutta percha, filling up the cavities and extending from tooth to tooth, by the pressure it receives from mastication, generally affords quite sufficient room if left for a week or two; and by this means, at the same time that the teeth are slightly forced apart, the gum is thrust back from the cavities, over the edge of which it almost always encroaches in deep approximal cavities of the grinding teeth.

In cases where there is naturally a slight space between the teeth, I sometimes, without any previous separation, employ a wooden wedge applied firmly but without much force; and again, I sometimes use wood in this way where the teeth are in actual contact, and where only the slightest separation is needful. But I deprecate very strongly the forcible insertion of a wooden wedge by means of the mallet.

In patients much older than thirty I do not often separate, unless it be very slightly, for, as a rule, the moving of firm adult teeth is both more difficult and more painful than is the case with younger teeth. I generally avoid putting much pressure on dead teeth for fear of setting up mischief in their easily disturbed periosteum, and I need scarcely point out that it is usually unwise to press apart teeth which support or involve the accurate fit of artificial dentures.

(B) In asking your attention for a few minutes to what I have to say about permanent separation of the teeth, I wish to disclaim any intention of disputing the value of contour fillings. Under certain conditions, restoration of original contour offers undoubtedly the best means of preservation. Where the general structure of the teeth to be treated is of a fair strength, and the enamel especially not of a soft, brittle character; where the teeth are in contact to begin with, and where the patient is one who will exercise a reasonable amount of care in attending to his mouth, then contour filling is of the greatest service.

All that I intend to do is to speak of those conditions under which separation is, I think, called for, and to urge a thorough application of the method if it be used at all, bearing in mind that the object of all conscientious dentistry, as it has recently been aptly described, is "the preservation and restoration, as far as in us lies, of all the organs committed to our care, the well-being of the patient being always the first consideration."*

Permanent separation is generally advisable: 1. When the teeth are wanting in density of structure. 2. When there is much superficial softening of the enamel, and where the approximal surfaces, instead of having what has been described as the ideal form, that is, touching only at a point near their coronal edges, are in close contact almost throughout. 3. When there is marked acidity in the fluids of the mouth, and ropy, clinging mucus. 4. When the teeth naturally stand slightly apart, and by their shape favour deleterious accumulations in the interspaces. 5. When the position of the cavity renders the possibility of perfect contour work uncertain. 6. When the patient under treatment is hopelessly negligent in the care of his teeth.

One of these conditions alone does not invariably call for separation, but it is usual to find several of them present together.

As to the mode of separation to be adopted with particular teeth, I will now briefly describe the methods that are, I think, the most serviceable. In doing so, my main object is to insist upon a nice discrimination as to the shape of the space desirable, and I wish particularly to point out that this shape must vary, depending on such considerations as the form and relative position of the teeth involved, and the extent of the decay under treatment.

I.—THE INCISORS.—Very seldom indeed do these teeth call for permanent separation of the whole extent of their adjoining surfaces, but the variations which occur in their shape and relative position call for varying treatment.

(a.)—Where the teeth come in contact only at one point near the cutting edge, nothing can be better than to keep them as they are.

(b.)—Where the teeth are in contact up to a point nearer the gum, it is advisable to trim them to a shape as nearly as possible that of those just described, cutting away very slightly indeed at the labial margins, but freely on the lingual surfaces. In these

* *Dental Cosmos*, March, 1885, p. 152.

cases the separation should be mainly done before the application of the rubber dam for filling, as the corundum discs have often to be carried below the surface of the gum.

(c.)—Not infrequently, however, a central will stand in such a relation to a lateral incisor as to make a very different form of separation desirable. I refer to those cases in which the teeth are in close contact from their necks (often below the surface of the gum) to within a short distance of the cutting edges, when their approximal surfaces diverge. Now in such cases it is a great mistake to apply a method of separation similar to that employed where the teeth naturally stand somewhat apart at their cervical edges. That is, if the teeth are separated right through to the gum, there being no point of contact at the cutting edge to support them, there is a great risk—in young subjects almost a certainty—of their coming into close and more extensive contact than ever. The plan to adopt, therefore, is to continue with chisel and file the separation already existing at the cutting edges, as far as it is possible so to do without cutting right through to the gum. A point of contact must be left, involving a well-defined but yet very narrow shoulder on each tooth. The lingual surfaces may be separated by a wedge-shaped space as before. Very close inspection is often necessary to ascertain that the points left in contact are quite free from chalky enamel. Any that may be present must be entirely removed by the finest files (Stubbs' oo), and the filed surfaces thoroughly polished with pumice and putty powder.

(d.)—In cases where the mesial edge of a lateral stands further back than it ought to, being somewhat overlapped by the central, and where there is decay on the approximal surfaces of the two teeth, a V-shaped space opening towards the lips—instead of, as usual, towards the palate—is often the best, involving the least loss of tooth substance, and giving a space more permanent than any other under the circumstances.

(e.)—It is difficult to give verbal directions for cases where teeth distinctly overlap, but much may often be done by judicious shaping of the adjoining surfaces to render the abnormal position of the teeth less unsightly and less productive of decay.

II.—UPPER CANINES AND BICUSPIDS.

(a.)—Where the labial walls of the cavity are fairly strong and sound, and the cavity itself not very large, it may not be necessary to do more than to cut away the mesial surface of the lingual cusp of the bicuspid and the corresponding surface of the canine, leav-

ing the labial surfaces in contact. This is practically the same method as that recommended in the case of incisor teeth, which naturally meet at their cutting edge and stand apart at their necks.

(*b.*)—Too frequently the labial edges of the cavities are so poor, and the teeth altogether so weak, that the only form of space which proves of permanent value is one which extends right through to the labial surfaces. Such a shape must be boldly V-shaped, its greatest width being towards the cutting edge of the teeth. To make such a separation involves often a considerable loss of tooth substance, for the upper canine and its neighbouring bicuspid commonly bulge a good deal just where they come into contact. One may easily be deterred from making such a formidable looking space by the fear of spoiling the look of the teeth, but, for my own part, I am convinced that by adopting this bold method, one does a greater service to the patient in the end—in the great majority of cases, where the teeth are really weak, than by contour fillings, or slight spaces having their sides parallel or converging towards the working edges of the teeth.

III.—BICUSPIDS AND MOLARS.—In the cases where a space is necessary between bicuspid and bicuspid, bicuspid and molar, or molar and molar, one of two forms of separation may be employed, according to the shape of the teeth and the extent of the decay already existing.

(*a.*)—When the teeth are in contact almost up to the gum, and the decay is slight and lies about midway between the neck and the crown, a space should be made almost, but not quite to the gum, a shoulder being left on each tooth. In dealing with the front teeth, I pointed out the importance of ascertaining that the shoulders themselves are free from chalky enamel, and the same warning applies here also.

(*b.*)—When the decay is extensive, reaching to or beneath the level of the gum, the separation must extend also down to or beneath that tissue, and a wide V-shaped space be made. And the same method must be applied where the teeth are naturally slightly spaced in such a manner as to be productive of harm to each other, by favouring the lodgment of deleterious accumulations. When in these cases the cavity walls are very frail, I bevel or chamfer them freely away towards the crown, so that the space assumes what may be called a trumpet-shaped form. The object gained is two-fold, the cavity walls being strengthened and the space made shallower, and therefore more likely successfully to serve its purpose.

There is a form of space sometimes made between bicuspids and molars which should only be used very exceptionally. I refer to the form which has been described as a double wedge, it being open towards the palate and the grinding surfaces, but closed at its labial aspect; that is, the teeth come into contact at their labial margins only. The advantage which this mode of separation offers is, that there being a point of contact between the teeth, there is not the same danger of the space becoming obliterated by movement of the teeth as there undoubtedly is when there is no such contact. But the depth and narrowness of the V-shaped space, reckoning from lingual to labial surfaces, is generally so great as to favour rather than prevent injurious accumulations.

I may here remark that in the case of very long teeth, as also in cases where—though of no great length—they touch close to their crown and then diverge unusually, it is especially desirable to avoid separation altogether, unless it is absolutely necessary. For in order that spaces between such teeth may be effectual, a large loss of tooth substance is necessary, and of course the deeper the space the more difficult it is to keep it free from foreign matters. Moreover, long teeth are much more likely to fall together after being separated, than short ones. And with regard to this liability of the teeth to fall together, in all cases, before separating—whether the teeth be long or short—the articulation between uppers and lowers should be carefully noted, for not unfrequently there is an indication in the bite against separation, while other conditions may have pointed to it as the wisest course. If the upper and lower teeth meet each other at an angle pointing forwards, one ought to be very cautious about separating. And not only in the relative position of individual teeth may one receive timely warning, but also in the shape of the lower maxilla. Where the angle of the jaw is abnormally obtuse, it will generally be found that there is an unusual tendency in the teeth to fall forward.

With regard to the temporary teeth, children often suffer much from the pressure of food against the gum in the interspaces, and complete relief may frequently be given simply by making a wide V-shaped space. And again, much decay of the first permanent molars may be prevented or largely arrested by freely cutting away the decayed distal surfaces of the second temporary molars.

I think I have made it sufficiently obvious that when separation has to be resorted to at all, I advocate a very free separation. I

hope I have also made it clear that, although the form of the separation must vary in important details, its main feature ought always to consist in the readiness with which the surfaces separated can be cleansed, the object of permanent separation being not primarily to facilitate filling, but to prevent the separated surfaces, whether filled or not, from becoming the seat of hurtful accumulations. Some of you may smile, if you are not annoyed, at my earnest reiterations of this point, as if it had not been insisted on a hundred times before. But I hope you will agree with me that one cannot express one's self too strongly, when I ask you to call to mind those cases coming (alas!) far too frequently into our hands, where a slovenly separation has been made, simply to remove a rough edge and to make easier the operation of the moment, without any regard whatever to the shape of the space which will remain after the filling is completed. Such spaces, with sides roughly parallel, or concave, or converging towards the coronal edge, are frequently worse than useless. And if it is necessary to insist upon free spaces, and spaces most carefully shaped with due regard to the purposes they are to serve, it is no less important to urge that all cut surfaces must be finely polished. Where the separation is made with a fine corundum disc, little, if any, subsequent polishing is needful, but the chisel and file must always be carefully followed by pumice and putty powder. Carelessness in this particular, neglecting to finish a cut surface so that it is absolutely smooth, will, time and again, result in the failure of what, in other respects, may be a perfect operation.

I must not close these remarks without adverting to extraction as a means of permanently separating teeth. It is often a most valuable means. Where, throughout the whole arch, the teeth stand in unusually close contact, are weak in character, and either threaten to be, or are the seat of wide-spread decay, then the removal of a bicuspid or molar is in most cases eminently the best practice. The space thus produced not only helps to preserve the adjacent surfaces, but it helps also to prevent the closing of the wide V-shaped spaces which have so often to be made between weak teeth, and which otherwise may be narrowed or almost obliterated, and so rendered comparatively useless, by the forward pressure exerted by the second or third molars. The question whether to remove bicuspids or molars, is one dependent on individual conditions of age and of the relative strength and position of the teeth, which I do not intend to enter upon here.

In concluding, whilst apologising for offering you so little that is original, and for repeating what, to many of you, must be a very old story, I must at the same time say that I am glad to have had this opportunity of pressing the claims of what, under certain circumstances, I hold to be a valuable mode of operating, and of deprecating the timid half-and-half measures that are too frequently adopted.

If what I have said, weighted by the sanction of this Society, should have any influence in helping, even in the slightest degree, to increase that thoroughness and efficiency of operative work which I presume we are all anxious to promote, then I may hope that I have not altogether wasted your time.*



The Obscure Origin of Pain, Illustrated by Two Cases in Practice.

BY FREDERICK CANTON, M.R.C.S., L.R.C.P.Lond. ; L.S.A.,
L.D.S.Eng.

CASE I.—A lady, the wife of a medical man, middle aged, and mother of a family, consulted me some time ago, complaining of considerable pain in a right upper molar tooth ; the pain was of an intermittent character, but did not occur at any particular time of the day or night. After a careful examination I could find no disease of any kind in the tooth referred to ; there was a small gold filling in the crown which had been in many years and was perfectly sound, and as I could find no decay in any of the upper or lower wisdom teeth, and none in the molars or bicuspid of either upper or lower jaw, I came to the conclusion that the pain must be due to neuralgia, and advised the lady's husband to treat her constitutionally. A short time afterwards I again saw her, and she still complained of the same character of pain in the same tooth. I made a careful examination, but could find nothing that I could attribute the pain to, I therefore, persuaded her to once again try a constitutional treatment, which she did, but in a few days returned with her husband, stating that she was very

* This paper was illustrated by a most instructive series of diagrams, reduced copies of which we had hoped to publish here ; but, unfortunately, the blocks were not ready, and having regard to future engagements we were unwilling to delay the publication of the paper any longer.—[ED.]

soon going away for a holiday to the sea-side, and begging that something might be done to give her relief, especially requesting that the tooth might be extracted. I again very carefully examined the teeth, and the only one I could find at all faulty was a right lower lateral; this tooth had a large filling in it which had been in for many years, but decay had occurred around the filling, and the tooth was also much discoloured. I therefore suggested that this, being the only tooth in her mouth which had any appearance of being faulty, should be extracted. She willingly agreed, gas was administered and the tooth removed; on examination, it proved to be a dead one, though there were no signs of any active inflammation around it. I saw this lady before she went away, and heard to my great satisfaction that she had been entirely free from pain ever since the extraction, and since then I have seen her, but she has never had any recurrence of the pain, and still retains the upper molar.

Case II.—A young lady whom I had attended for several years was brought to me in September last by her mother, complaining of severe and almost continuous pain in the region of the left upper wisdom tooth; her age was seventeen, she was very tall indeed, and very anæmic in appearance. On examining the mouth I found the crown of the left upper wisdom tooth partly through the gum; the first molar having been extracted some years before and the second molar having taken its place, there was plenty of room for the wisdom to come into position. I therefore advised her to put up with the pain for a short time longer, feeling sure that as soon as the tooth was well through the pain would cease, and in the meantime advised a nourishing and careful diet, accompanied by tonics.

She was brought to me again in January last, just three months after I had seen her before; the pain had been more or less continuous ever since I had last seen her, and I was requested to remove the tooth as she was being worn out with the pain, which, I was told, was always aggravated at her monthly periods. Her appearance was certainly worse than on her previous visit, looking more anæmic and delicate. On examining the mouth I found the surface of the crown of the wisdom tooth thoroughly exposed, but the whole of the tooth was not down in place.

As this patient lived a long way from London and was evidently being worn out with pain, and it being the desire of herself and mother, I decided to extract the tooth, telling the mother at the

same time that the only cause of the pain I could imagine was that possibly a supernumerary tooth might be pressing on this one.

She had gas administered, and the tooth came out very easily, but the pain afterwards was rather severe, as is not unusual. On examining the tooth afterwards, I found the root had the appearance of three fangs united, and that the apex formed by the three was distinctly absorbed. I therefore felt there was every probability of a second wisdom tooth being the cause of pain, and asked the mother to be sure and notice if another tooth should appear in the place. Within two or three weeks of the extraction I received a note saying that another tooth was making its appearance, but without causing any pain.

I have thought these two cases of sufficient interest in themselves to be recorded in our Journal, but I have done so also, in the hopes that others, members of the Association, many of whom must have interesting cases, would make notes of such and send them to the Journals.

Citrate of Cocaine.

By PROFESSOR W. D. MILLER, B.A., Ph.D., &c., Berlin.

SHORTLY after the meeting of the Ophthalmological Congress in Heidelberg, 1884, I began to make use of the hydrochlorate of cocaine in the treatment of sensitive dentine, gums, &c. I used it to some extent in my practice, and very considerably at the clinic of the Dental Institute. At first a 4 per cent. solution was used, later on 30 per cent., and even stronger solutions were employed. The results of these experiments were given very concisely in the *Independent Practitioner*.

I found that as an application to sore gums, before applying the cofferdam, it could be used to great advantage; for lancing the gums or opening deep-seated abscesses, I found its action to be too slow and superficial to encourage its use, and for obtunding sensitive dentine, I found it proved to be so unreliable and slow, that though I had the solution constantly in my office, I ceased altogether to use it for this purpose. I preferred in cases where the dentine was very sensitive to apply a pledget of cotton dipped in a concentrated solution of carbolic acid containing acetate of morphia, and to cover this with Fletcher's Artificial Dentine to keep out the saliva. This may be left in the cavity from twenty-four

hours to a week, or even longer, according to circumstances. It effects a complete sterilization of the cavity, and so far obtunds and anæsthetizes the dentine that the excavation may be quickly and thoroughly done without pain to the patient, or strain to the operator. I may say that in all cases where I make application to the dentine or to the pulp for the purpose of sterilizing or obtunding, conserving or devitalizing, I cover the application with Fletcher's Artificial Dentine, it being the only material in use which may be easily applied in such cases, and completely excludes moisture for any length of time. The practice of covering such applications with cotton dipped in sandaric, is worthy of all censure. One can sometimes accomplish wonders in excavating sensitive dentine with hot air and a *new* true-running wheel burr, size 0 or 1.

To return to cocaine. On the whole, the results which I obtained were not sufficiently satisfactory to encourage me to continue its use.

Some two months ago I received, through the kindness of Mr. Brunton, of Leeds, a quantity of the *Citrate* of Cocaine, prepared by Reynolds and Branson, Leeds, with the request to give it a thorough trial, and report the results in this journal.

The first application was a complete success. I had to excavate for a colleague an exceedingly sensitive tooth, the operation being accompanied by considerable pain. A six minutes' application was sufficient to remove the sensitiveness entirely, and the tooth was excavated without any further trouble. In very few cases, however, did I obtain such marked success by one application, and in so short a time, sometimes two or even three applications being necessary to complete the excavation without pain, causing a loss of much time, for which, however, our patients are generally willing to compensate us if the operation can thereby be rendered less painful. In some cases the application caused considerable pain, making the tears come into the patient's eyes, and sometimes it appeared to have no effect whatever.

I have not been able to discover under what conditions, or more particularly, upon what class of teeth the preparation was most effective, though its action has appeared to me to be much more superficial upon hard dense teeth than upon those of a soft porous character.

For obtunding the gums before applying the cofferdam, its action is very efficient.

I have not been able to employ either the citrate or any other preparation of cocaine with great success in the extirpation of the dental pulp. Particularly where the pulp is inflamed, as is generally the case, it acts very slowly. A few days ago a patient came to me with the crown of the right superior central incisor broken off, the pulp protruding and inflamed. It required three quarters of an hour and repeated applications to so far anæsthetize it as to remove a little more than the protruding portion without pain. One can, however, in case of the front teeth, where there is a free exposure and the pulp not extensively inflamed, succeed in removing the whole pulp in one sitting with no very great pain to the patient.

This operation is indicated only in those cases where for any reason a second sitting cannot be given. In general I prefer to apply the arsenic paste, the danger of which, when not carelessly applied, has, I think, been much exaggerated.

On the whole I am not an ardent advocate of any preparation of cocaine, either for obtunding sensitive dentine or for extirpating the dental pulp. The advantages which I have derived from the use of the citrate have, however, thus far been sufficiently great to induce me to continue its use in my own practice in all cases of extremely sensitive dentine where the operation must be completed in one sitting. Where two sittings may be given, I prefer the method described in the beginning of this communication.

HOSPITAL REPORTS AND CASES IN PRACTICE.

A Case of Altered Salivary Secretion.

By CHARLES S. TOMES, M.A., F.R.S.

A PATIENT has several times presented herself for the treatment of ordinary dental caries at intervals of six and twelve months, in whom the saliva is so peculiar that the case merits a short note, which, it is hoped, may elicit from others a record of similar conditions if they have been met with; but so far as my own experience goes the case is unique, and I cannot find any notice of the condition in any work which I have consulted.

From each parotid duct there exudes a thick purulent fluid, which, to the naked eye, as well as to microscopic examination, presents all the characters of "laudable" pus; the mouth is, as

might be expected, somewhat dry, and the whole mucous membrane has a curious marbled, reticulated look ; the pus about the orifice of the ducts is free from odour and does not contain organisms, at least not in any numbers which would suggest their really having issued from the gland ; but the breath was peculiar and unpleasant in odour. The reaction of the pus was strongly alkaline.

It was not practicable to obtain a sufficient quantity of the parotid saliva to render any test at all conclusive, but a drop failed to convert into sugar a very small trace of starch, whereas a similar quantity got from a healthy mouth did so readily. The patient, an intelligent and apparently trustworthy witness, declared that this state of things, of which she was well aware, had existed for nearly twenty years, and that it dated from a severe attack of typhus fever, in the course of which there had been what she described as "an abscess" in both parotid glands. There was no unusual amount of caries, and the secretion of the submaxillary glands was apparently healthy ; the patient's general health and her digestion were excellent, and, so far as I could ascertain, no inconvenience was suffered beyond the dryness and stickiness of the mouth.

During my operations a notable quantity of pus exuded from the ducts, and on each occasion the inner surfaces of the cheeks were smeared with it ; so that it would appear that it is quite possible to go on swallowing pus year after year, and probably to dispense with the ordinary functions of the parotid saliva for a like period without any apparent detriment.

It might well have been supposed that the viscosity of the oral secretions would have ensured the speedy destruction of the teeth by caries, but, as has already been mentioned, this had not been the case. The teeth were, judging by their colour and form, typically strong, and it may be that to their original excellence they owed their capability of resisting what, according to all analogy, one would suppose to be very unfavourable influences. Whether the original illness was really typhus, or was typhoid fever, I could not satisfy myself by inquiries, but the account given of the epidemic in which she suffered, would rather point to its having been typhus.

Epiphora and Slight Ectropion Cured by Removal of Buried Root of Canine Tooth.

By J. M. ACKLAND, M.R.C.S., L.D.S.Eng., Exeter.

MRS. H., aged forty-three, was sent to me at the Dental Hospital with a fistulous opening about half an inch below the inner canthus of the right eye, and well marked epiphora, as well as slight ectropion on that side. The woman complained of the tears continually running down her cheek, and appeared greatly troubled by the disfigurement, which she said was increasing. On examination, the mouth, as a whole, seemed in fairly good condition, but nothing could be seen of the right upper canine. The patient remembered the tooth breaking off some years before, but the root had not been extracted. On slight pressure, a small quantity of pus escaped through the opening in the cheek, but none into the mouth. With the aid of a probe I was able to detect something, which certainly felt like tooth-substance.

The patient refused to have any anæsthetic, so I proceeded at once to cut down to the buried root with a small scalpel; the cavity was then plugged open with lint, and the next day, when the hæmorrhage had ceased, I was just able to make out the edge of a tooth. This I managed to reach and extract with a pair of bayonet-forceps, but not without considerable difficulty. The root, I think I may safely say, was three-quarters of an inch in length; no abscess-sac came away with it, but its apex was quite denuded of membrane. From that time the discharge of pus gradually stopped, things began to mend, and when I last saw the patient, she was quite well, the tears travelled in their usual direction, the eyelid was normal, and the opening in the cheek entirely closed.

The tooth could never have taken up its normal position in a line with the others, or its root would not have reached so far up; and the whole case seems to me to furnish a good example of the mischief which may arise from teeth, and clearly proves the advisability of examining the mouth in cases of disease in its neighbourhood, the etiology of which is at all doubtful—if, indeed, any proof be necessary, at any rate so far as the eye is concerned, after the able paper read by Mr. Henry Power before the Odontological Society about eighteen months since.

It may be said by some that, in this particular instance, the ophthalmic lesion was merely coincident with, and not a consequence of, the dental mischief; but the fact still remains that the

extraction of the tooth caused complete relief from the trouble, which for three months before had been gradually getting worse ; and as the case appears somewhat uncommon, I thought it worth recording.—*British Medical Journal*.

REVIEWS AND NOTICES OF BOOKS.

THE STUDENT'S GUIDE TO SURGICAL ANATOMY, by EDWARD BELLAMY, F.R.C.S., Fellow of King's College, Surgeon to Charing Cross Hospital, &c., &c. Third Edition, Enlarged and Revised. London, J. and A. Churchill.

To style a students' book "perfect" is high praise, but this term may be justly applied to Mr. Bellamy's work. The rapidity with which it has passed through successive editions sufficiently testifies to its merits, and we have little doubt it is well known to all our readers engaged in teaching and to most diligent students of medicine. To those of the latter class preparing for examination at the College of Surgeons for the diploma of member, we can particularly recommend Mr. Bellamy's book as especially helpful. The author possesses in a high degree the faculty of teaching, and this, by practice, he has developed to the fullest extent, so that his writings are free from those faults which too often mar the works of inexperienced authors when addressing students, and render the labours of the learner unduly arduous. What a student needs most of all is real knowledge and solid facts. To present these with perfect lucidity, with sufficient fulness, and at the same time concisely, requires literary skill of a high order, and it is not to be wondered at that so many who attempt the task fail. On the one hand we often meet with students' books which are overladen with unnecessary detail, full of doubtful theories and hypotheses, and obscure in style withal ; and, on the other hand, we as commonly encounter books which, although clearly expressed, are so brief as to serve no other purpose than of aids to "cramming." It is difficult to know which of these two classes is the more hurtful to the learner, but we incline to give the bad eminence to the latter. This kind of book, we believe, serves only to give a feeling of false confidence to idle students, who, rapidly stuffing their heads with superficial generalities find, too often, in the presence of the examiner, that they have been leaning on a very dangerous support indeed. Of Mr.

Bellamy's book it may be safely said that neither student nor practitioner possessing it can ever need another work on the same subject.

To the publishers great credit is due for the admirable manner in which they have produced this work. It is a worthy specimen of the advanced style of medical literature, in which recently a new departure seems to have been taken. The woodcuts are especially admirable, a vast amount of labour having been evidently expended in making them clear down to the minutest detail ; and the majority having been drawn by the author, forms an additional guarantee of their fidelity. We congratulate the publishers and also their clients on this valuable addition to that now well-known list of works by leading writers—"the Student's Guide" series.

A SUGGESTED SYSTEM OF DENTAL NOTATION FOR THE USE OF DENTISTS IN RECORDING OPERATIONS ; by GEORGE CUNNINGHAM, D.M.D. Harvard. Dental Manufacturing Company, London.

THERE is little need for us to insist upon the importance of a careful system of records either in hospitals or in private practice. It is true that practitioners may be met with who affect to disbelieve in their value, but when pressed in argument the invariable stand-point is, that they "cannot afford the time." If keeping records necessarily entailed writing out notes of each case in full, this plea could not be altogether ignored. Dr. Cunningham has, however, proved—as indeed, several others have done before him—that by the use of symbols and abbreviations the amount of "time and trouble" required can be so reduced that they cease to be valid objections.

At first sight the long list of signs and contractions drawn up by Dr. Cunningham appears formidable, but it will be found in practice that familiarity with them is very easily acquired, and that when in actual use the system is far simpler than it looks. We would give only one caution as the result of experience, viz., that contractions should be sparingly used for proper names and remedies. We see, for example, in Dr. Cunningham's list of contractions, that E. stands for Eucalyptus, and Hs. for Hamamelis. These are both of them excellent remedies, but it is possible that they may be superseded and almost forgotten in the course of a few years ; at

all events, we can state that we have ourselves been sadly puzzled to remember what similar contractions stood for, though they represented materials which were in almost daily use not very many years since. If the names be written in full a few times at first, all future trouble of this kind may be avoided.

Dr. Cunningham would, we feel sure, be the last to claim any large amount of originality for his system. It is, however, thoroughly well thought out, and we heartily commend it to all, but especially to young practitioners. If only something of the sort could be introduced at our hospitals they might at once relieve themselves of a reproach to which we have more than once called attention, and their usefulness to the profession would be greatly increased. We cannot here enter into the details of the system, or point out its ready application to book-keeping, tabulation of cases, &c., but must refer our readers to the pamphlet itself, in which all these points are briefly and clearly explained.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Dental Hospital of London.

THE Annual Distribution of Prizes amongst the students attached to this institution took place at the hospital on Friday the 24th ult., Sir RISDON BENNETT, M.D., F.R.S., in the chair.

The Dean (Mr. Morton Smale) read a very satisfactory report of the progress of the school during the preceding year.

At the last distribution, they were regretting the departure of Mr. Coleman to New Zealand, and his resignation of the post of Lecturer on Dental Surgery. Mr. Hutchinson, who had been elected to fill this vacancy, had found it necessary to resign his post as Surgeon to the Hospital which he had held for nine years. Mr. Storer Bennett, the Senior Assistant Surgeon, had been elected to fill the vacancy caused by Mr. Hutchinson's retirement, and Mr. Hern, who had been well known as Saunders' Scholar, House Surgeon, and Demonstrator, had been elected Assistant Dental Surgeon.

Mr. Ackery, who had for some years been doing good service to the school as Demonstrator, had unfortunately found it necessary to resign this post, his duties at St. Bartholomew's Hospital occupying all the time he could spare from his practice. Mr. Latchmore had ^{an} been chosen to fill this vacancy.

The pass list at the College had been up to the average ; at each of the examinations all the candidates except one had been successful, much to the credit of the Medical Tutor ; six of the students had passed the primary membership, one the primary fellowship, and one old student (Mr. Newland Pedley), the final fellowship examination.

The new entries had been much larger than in any former year, thirty-one new students having joined. Over forty students were in daily attendance at the hospital, so that the present accommodation was rapidly becoming inadequate.

The House Surgeons, Messrs. King, Crocker, and C. R. Smith, had devoted themselves with energy to their duties, and he had great pleasure in publicly thanking the students for their good behaviour and for the courtesy at all times shown by them to the members of the staff.

The prizes were then distributed by Sir Risdon Bennett as follows :—

Saunders' Scholarship, Mr. C. F. Rilot. *Messrs. Ash's prize*, for an essay on "Tumours in connection with the Jaw and surrounding tissues," Mr. W. J. England ; the essays of Messrs. W. M. Gabriel and G. O. Richards were specially commended. *Metallurgy*, first prize, Mr. W. J. England ; second, Mr. L. E. Sexton ; certificates of honour, Messrs. C. F. Rilot, Lloyd Williams, G. O. Whittaker, G. O. Richards, and J. Colyer. *Mechanical Dentistry*, first prize, Mr. C. F. Rilot ; second prize, Mr. F. M. Ladbroke ; certificates of honour, Messrs. C. A. Barstow, and H. J. Moore. *Dental Anatomy*, first prize, Mr. G. Champion ; second, Mr. C. F. Rilot ; certificates of honour, Messrs. L. E. Sexton, and J. Mansbridge. *Dental Surgery and Pathology*, first prize, Mr. C. F. Rilot ; second, Mr. G. O. Whittaker ; hon. certificates, Messrs. L. E. Sexton, W. M. Gabriel, G. O. Richards, T. C. Williams, and F. M. Ladbroke. *Operative Dental Surgery*, first prize, Mr. C. R. Smith ; second, Mr. L. Jeffrey ; hon. certificate, Mr. W. J. England.

SIR RISDON BENNETT then said he hoped he was not expected to deliver a formal address, but he would just mention one or two things which had occurred to him during the time he had occupied the chair. He thought in the first place, that the public generally ought to be very grateful to those who had been the means of establishing that and other similar institutions. Without these it would have been impossible for young men entering

the dental profession to complete their education and be prepared to take up that position in society which, as dental surgeons, they ought to occupy. Dental hospitals were also of great value to the public, both as a means of advancing the education of the dental specialist, and also by giving to the suffering poor the relief of which they were frequently in urgent need.

He would impress upon the students present that in the effort to master any branch of knowledge, the first steps were always the most difficult. Courage and determination were the qualities necessary for success in any position in life, especially for those which required a prolonged scientific training; and even though they possessed these, they might not get their reward at first, but they must persevere, and in after life they would obtain the fruits of their work, and be able to look back with satisfaction to the efforts they had made.

In conclusion, he congratulated the prize-winners on their success, and assured the others that they had no cause for disappointment if only they had done their best. He heartily wished them all success in their future careers.

A vote of thanks to the chairman was proposed by Sir Charles McGregor, seconded by Mr. Gregson, and carried with applause. Sir Risdon Bennett having briefly replied, the proceedings terminated.

The Edinburgh Dental Hospital and School.

THE half-yearly meeting of the directors of this institution was held on Tuesday, the 21st July, in the school in Chambers Street, under the chairmanship of Dr. Smith. The Dean, Mr. Bowman Macleod, in submitting the report of the school work for 1884-85, said he had much satisfaction in being able to announce the continued prosperity of the institution. The average attendance had been most satisfactory, and the quantity and quality of the practical work had been exceptionally good. The report mentioned the gratifying position which the students had occupied in the medical classes in the winter session, Mr. J. Leslie Fraser having taken first place and a silver medal in the class of materia medica, and Messrs. C. E. Dew and J. L. Wilde, 5th and 7th places. In the class of systematic chemistry, certificates of merit were awarded to Messrs. Charles E. Dew, 91.6 per cent; David Thom-

son, 88.6 per cent. ; Gordon Shiach, 85 per cent. ; and E. Percy Rose, 81 per cent., being the 7th, 11th, 16th, and 19th, places in competitive roll of 42. In practical chemistry, C. E. Dew received a certificate with 91 per cent. In physiology, Messrs. David Thomson and E. Percy Rose took 2nd and 3rd places. In systematic anatomy (Junior Division), Mr. Gordon Shiach took second place with 94 per cent. ; Mr. E. Percy Rose, third place, with 93 per cent. ; Mr. David Thomson, fourth place, with 92 per cent. ; and Mr. R. J. Pirie, sixth place, with 90 per cent. In practical anatomy, Messrs. Thomson, Rose, Pirie, and Shiach took certificates of merit, with 88, 85, 84, and 81 per cent. of marks. In the special work of the hospital practice the senior prize had been gained by Mr. Thomas P. Ritchie, Mr. David Browne receiving a special commendation. In the junior division, Mr. Gordon Shiach took first prize, Mr. E. P. Rose being a good second. In the class of dental anatomy, the prize had been gained by Mr. J. Leslie Fraser, while Mr. David Browne had carried off the prize in the class of dental surgery and dental mechanics. The number of cases treated at the hospital for the quarter ending the 30th June, was as follows:—Extractions, 706 males and 483 females for minor operations, in addition to 24 major operations under anæsthetics, and 499 stopping cases—176 in gold, 174 in alloy, and 149 with cement. The total for the quarter was thus 1702, being an increase of about 100. On the motion of Dr. Reid, the report was adopted, and the chairman then presented the prizes to the successful students, and commented on the gratifying results of the work, mentioning that 1055 stoppings had been inserted in the competition for the “Hospital Practice” prize during the term of 7½ months. On the motion of the Dean, a vote of thanks was accorded to Mr. J. Leslie Fraser for the attention he had paid to the work of the school during the last three months, and a similar compliment was paid to the chairman on the motion of Mr. G. Graham.

UNION OF FRACTURED TEETH.—Dr. Wingate reports eight cases of united fractures in teeth from Carbondale, Pennsylvania, where there is a large class of miners amongst whom accidents are common. As these teeth were all extracted on account of the pain and discomfort caused by their distorted shape, it is probable that united fractures in teeth are much more common than has been supposed, for these teeth represent the failures only ; the successful cases, not giving trouble, were never recognised.—*Medical Times and Gazette*.

MINOR NOTICES AND CRITICAL ABSTRACTS.

On the Periods of Eruption of the Permanent Teeth as a Test of Age.

By JOHN LIVY, M.D., Bolton.

UNTIL the passing of the Factory and Workshops Act, 1878, the certifying surgeons had no other means of ascertaining the age than those furnished by the eruption or otherwise of the permanent teeth, and the general *physique* of those presenting themselves for examination. Since the Act enforces the production of a birth certificate, evidence of age from other sources is unnecessary. The subject, however, remains of practical value, and retains its interest from a biological as well as a forensic point of view. The appearance, the number, the character and disposition of the teeth, form one of the most valuable and important guides in determining the classification of mammals. Their relations to the food and habits of the animal, and the facility with which they can be examined, as well as their durability, render them alike interesting and instructive to the naturalist.

The object of this paper and the subjoined tables, have been simply to ascertain the periods of eruption of the permanent teeth. In order to obtain reliable evidence of age, every case was rejected where the birth-register could not be produced. Some authorities say that the first molars appear at the end of the fourth year, while others give it as late as the seventh year. In the case of children under ten years of age, who are not allowed to work in mills or workshops, advantage was taken of the Education Act, which requires the birth-register of every child on first going to school. For the purpose of this inquiry, about 4,000 children were examined, 2,000 over ten years of age, seen at various mills and workshops in Bolton, and 2,000 under 10 years of age, attending various schools in the town. The class of children were those of the ordinary working population of Bolton, a town containing over 100,000 inhabitants, and comprised the children of mechanics, cotton-operatives, bleachers, small shopkeepers, labourers, &c. The annexed tables show a considerable range in the periods of eruption.

As a single exception at the same time invalidates, and to some extent supports, a general law, so when the exceptions are numerous, as will be found to be the case here, a more or less high

degree of probability is all that is attainable. There is no law in biology absolute. Nature is variable, and yet there is a certain uniformity. At the same time, it may be affirmed that the eruption of the permanent teeth is the best physiological proof of age that we possess.

The typical number of teeth among placental mammalia is, according to Owen, 44, according to others 40. Mammals only have a well-marked division into four kinds; namely, incisors, canines, pre-molars, and molars. As is well known, the reduced human dental formula numbers 32.

The first and second premolars in man represent the third and fourth premolars in those animals having four premolars.

In the chimpanzee and the oranges, the second molar comes into position before the premolars. This, I have found, is a very frequent occurrence in the human subject in both sexes, whilst the third or last molar is acquired before the canines.

When the typical number in diphyodont mammals is reduced, it is the first premolar that is absent, and the third or last molar. The first molar is, therefore, the first of its series, whilst the second premolar is the last of its series, and the fourth of the typical dentition.

The premolars in man have never more than two fangs, generally only one. The first and second molars have two fangs in the lower jaw, sometimes convergent, and occasionally divergent, placed anteriorly and posteriorly. In the upper jaw the molars diminish in size from before backwards. They have three fangs, and occasionally four, two external; the anterior is the longest. As a rule, it will be found that the most vigorous and the most wisely fed children have the finest teeth. Indeed, it may be stated almost axiomatically, that children of Irish parents have, as a rule, the best developed teeth.

In boys between 4 and 5 years of age, the lower first molars come first into place. In boys between 5 and 6 years of age, the first lower molars are acquired first, in the ratio of fourteen to one; at the same age the lower central incisors appear first, in the ratio of three to one. The lower lateral incisors also come first into position at this age. In boys between 6 and 7 years of age, the lower first molars are acquired before the upper first, in the ratio of three to one. The lower central incisors are the first to rise into position, in comparison with the upper central as seventeen to one, whilst the lower lateral incisors invariably first appear. In boys be-

TABLE A.—Boys.

Number examined.	Age.	Dentition.	Number.	Temporary only.	First Molars.	Incisors.	Premolars.	Canines.	Second Molars.	Remarks.
						Central.	Lateral.	First.	Second.	
34	4 } to	Mean	33	T.O.	—	—	—	—	—	Of this number, only one child aged four years and seven months, had two lower first molars.
	5 }	Highest	1	—	2	—	—	—	—	
	5 } to	Mean	90	T.O.	—	—	—	—	—	Of this number, 90 had temporary teeth only, 14 had four first molars, one child, aged five years and ten months, had four first molars, three central incisors, and two lower lateral incisors.
126	6 }	Highest	1	—	4	3	2	—	—	The oldest child with temporary only was six years and ten months. Forty of this number had temporary only, 34 had all the first molars, one had four first molars, four lateral, and four central incisors, and also one first premolar. He was six years and six months old. Another had two lower first molars, one upper central incisor, no lateral incisors or first premolars; and two lower second premolars.
	6 }	Mean	40	T.O.	—	—	—	—	—	
	7 }	Highest	1	—	4	4	4	1	—	Of this number, three had temporary only, aged respectively seven years three months, seven years six months, seven years ten months; 56 had four first molars, and two central incisors; 36 had two upper and two lower first molars, two upper and two lower central incisors, and two lower lateral incisors. One child, aged seven years seven months, had first molars, central and lateral incisors complete, and also four first premolars, and one lower second premolar.
172	6 }	Mean	40	T.O.	—	—	—	—	—	
	7 }	Highest	1	—	4	4	4	1	—	
	7 }	Lowest	3	T.O.	—	—	—	—	—	
	to	Mean	56	—	4	2	—	—	—	
	8 }	Highest	1	—	4	4	4	4	—	
222	7 }	Lowest	3	T.O.	—	—	—	—	—	
	to	Mean	56	—	4	2	—	—	—	
	8 }	Highest	1	—	4	4	4	4	—	

TABLE A.—Boys (continued).

Number examined.	Incisors.			Second Molars.	Remarks.
	First Molars.	Central.	Lateral.		
176	2 4 4	— 4 4	— 2 4	— — —	In this group, one child only, aged five months, had two lower first molars and central incisor (two lower lateral incisors. (Eight years and nine months, had all the first molars, central and lateral incisors, three first premolars, three canine. Another, months, had first incisors complete, two lower first premolars, no second premolars, and two lower canines. In this group, 22 had all the first molars and central incisors, and two lower lateral incisors. Two, aged nine years and seven months, had only four first molars, and two lower central incisors, whilst one, aged nine years and nine months, had all his permanent set, except the upper second molars and the dentes sapientes. Seven only in this group had first molars, central and lateral premolars had four and two lower aged 10 years the dentes sapientes One child in this small group, aged 11 years, had only four first molars and three central incisors, one upper and two lower. Another had all complete as far as the canine, excepting one upper canine.
154	4 4 4	2 4 4	— 2 4	— — 2	
67	4 4 4	3 4 4	2 4 4	— — 4	
10	4 4 4	3 4 4	— 4 4	— — —	

TABLE B.—Girls.

Number examined.	Age.	Dentition.	Number.	Temporary only.	First Molars.	Incisors.		Premolars.		Canine.	Second Molars.	Remarks.
						Central.	Lateral.	First.	Second.			
35	4	Mean	33	T.O.	—	—	—	—	—	—	—	The mean dentition of this group (33) consists of temporary teeth only. One child, aged four years and seven months, and another aged four years and eleven months, had each one lower first molar.
	5	Highest	2	—	1	—	—	—	—	—	—	
122	5	Mean	87	T.O.	—	—	—	—	—	—	—	The mean dentition of this group is temporary teeth only. One child, aged five years, had four first molars and two upper central incisors, and another, aged five years, had four first molars, and two lower central incisors.
	6	Highest	2	—	4	2	—	—	—	—	—	
172	6	Lowest	19	T.O.	—	—	—	—	—	—	—	The mean dentition of this group was four first molars and two central incisors; 19 had temporary only, whilst one child, aged six years and seven months, had four first molars, four central incisors, and three lateral incisors.
	to	Mean	37	—	4	2	—	—	—	—	—	
	7	Highest	1	—	4	4	3	—	—	—	—	
199	7	Lowest	6	T.O.	—	—	—	—	—	—	—	Six persons in this group had temporary only. One of the six was aged seven years and nine months. The mean dentition (in 50) was four first molars and two lower central incisors, whilst the highest, aged only seven years and two months, had first molars, central and lateral incisors, and the first and second premolars complete, with one lower canine, and two lower second molars.
	to	Mean	50	—	4	2	—	—	—	—	—	
	8	Highest	1	—	4	4	4	4	4	1	2	
107	8	Lowest	1	—	2	—	—	—	—	—	—	In this group one child, aged eight years and four months, had cut only the two lower first molars. The mean dentition (in 28) at this age was the first molars, the central and lateral incisors complete. The most advanced member of this group had all complete as far as the canine, except one upper second premolar, (aged eight years and ten months).
	to	Mean	28	—	4	4	4	—	—	—	—	
	9	Highest	2	—	4	4	4	4	3	4	—	

TABLE B.—Girls (continued).

Number examined.	Age.	Dentition.	Number.	Temporary only.	First Molars.	Incisors.		Premolars.		Canine.	Second Molars.	Remarks.
						Central.	Lateral.	First.	Second.			
140	9 } to } 10 }	Lowest	1	—	4	2	—	—	—	—	—	One child of this number, aged nine years and three months, had only first molars and two lower central incisors. The mean dentition proved to be first molars, central and lateral incisors complete, three first premolars and one second premolar (in 37). The two most advanced children in this group, aged nine years and nine months, and nine years and eight months, had all complete up to the second molars, excepting one upper molar. Great variation in group. The least advanced dentition in this group was that of a child, aged ten years and six months, with four first molars and two lower central incisors only. The mean dentition (in 11) was the first molar, the central and lateral incisors complete, whilst the highest had all complete (aged ten years and 11 months), except the dentes sapientiae. Considerable variety in group. Two in this group had the first five series of teeth complete. The most advanced (eleven years eight months) had all complete, except one upper canine, and one upper second molar, and the dentes sapientiae. There was no mean in this small group.
		Mean	37	—	4	4	3	1	—	—	—	
		Highest	2	—	4	4	4	4	4	4	4		3
88	10 } to } 11 }	Lowest	1	—	4	2	—	—	—	—	—	Two persons in this number had all complete as far as the second molars, and the others nearly so.
		Mean	11	—	4	4	—	—	—	—	—	
		Highest	1	—	4	4	4	4	4	4	4	
16	11 } to } 12 }	Lowest	1	—	4	4	4	1	1	2	—	Two persons in this number had all complete as far as the second molars, and the others nearly so.
		Mean	2	—	4	4	4	4	4	3	—	
		Highest	1	—	4	4	4	4	4	3	3	
7	12 } to } 13 }	Lowest	1	—	4	4	4	2	1	3	4	Two persons in this number had all complete as far as the second molars, and the others nearly so.
		Mean	2	—	4	4	4	4	4	4	2	
		Highest	2	—	4	4	4	4	4	4	4	

tween 7 and 8 years of age, the first lower molars come first into place, in the ratio of five to one. The lower central incisors, as seventy-seven to one. The lower lateral incisors invariably appear first. The first premolars, representing the third in the typical number among the mammalia, come, as regards the upper and lower, into position in about equal proportions at this period of life.

In boys, during the ninth year, the first lower molars are invariably the first acquired. The lower central incisors show first, in the ratio of twenty to one. The lower lateral incisors, at this period of life, invariably show first. The upper first premolars show first as three to one. The upper second premolars, the fourth in the typical series, appear first in the ratio of two to one. At this age, the lower canines are invariably first acquired.

TABLE C.—*Tabular Statement of Teeth (permanent), as a Test of Age in reference to Factory Children.*

Boys.	Age.								Total.
	9	10	11	12	13	14	15	16	
Lateral Intisors	2	42	9	4	1	1	—	—	59
First Premolars	1	76	12	1	—	—	—	—	90
Second Premolars	—	59	36	5	—	1	—	—	101
Canine	—	18	28	25	8	—	—	—	79
Second Molars	—	5	42	67	275	184	78	12	663
							Total		992

Girls.	Age.								Total.
	9	10	11	12	13	14	15	16	
Lateral Incisors	—	24	8	4	—	—	—	—	36
First Premolars	—	56	13	2	1	1	—	—	73
Second Premolars	—	51	16	2	2	—	—	—	71
Canine	—	30	34	12	5	—	1	—	82
Second Molars	—	5	44	80	288	249	66	14	746
							Total		1008

N.B.—The numbers below each age refer to the appearances of one or more of the series of teeth stated. For example—Of 50 boys with the lateral incisors as their eldest teeth, two were nine years of age, forty-two were ten, nine were eleven, &c.

In boys between 9 and 10 years of age, the lower central and lower lateral incisors always cut the gum first. The upper first premolars appear first in the ratio of five to one. The upper second premolars rise into place in the ratio of seven to one. The lower

TABLE E.

Teeth.	First Appearance.														
	Boys—Ages.						Girls—Ages.								
	5	6	7	8	9	10	11	12	5	6	7	8	9	10	11
Upper Molars	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lower Molars	Inv.	14-1	3-1	5-1	Inv.	—	—	—	Inv.	7-1	8-1	Inv.	—	—	—
Upper Central Incisors	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lower do.	—	3-1	17-1	77-1	20-1	Inv.	Inv.	—	—	—	30-1	60-1	Inv.	—	—
Upper Lateral Incisors	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lower do.	—	—	Inv.	Inv.	Inv.	Inv.	Inv.	—	—	—	Inv.	50-1	20-1	11-1	—
Upper First Premolars	—	—	—	Eq.nos	3-1	5-1	3-1	—	—	—	—	Eq.nos	5-1	2-1	2-1
Lower do.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Upper Second Premolars	—	—	—	—	2-1	7-1	4-1	—	—	—	—	—	6-1	Eq.nos	5-1
Lower do.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Upper Canines	—	—	—	—	—	—	—	—	—	—	—	—	—	Inv.	Inv.
Lower do.	—	—	—	—	Inv.	Inv.	Inv.	—	—	—	—	—	—	—	—
Upper Second Molars	—	—	—	—	—	—	Eq.nos	Eq.nos	—	—	—	—	5-1	—	—
Lower do.	—	—	—	—	—	Inv.	—	—	—	—	—	—	—	—	Inv.

N. B.—This table has been made to show the priority of the teeth of the upper and lower jaw in each series. Ex.—In boys of five years the lower molars invariably appear first. In boys of six years the same teeth appear first in the ratio of fourteen to one.

canines and the lower molars invariably appear first at this time of life.

In boys between 10 and 11 years of age, the lower central and the lower lateral incisors invariably appear first. The upper first premolars are first acquired in the ratio of three to one. The upper second premolars erupt first in the ratio of four to one. The lower canines invariably appear first. The second molars, upper and lower, appear first in equal proportions at this age.

In boys between 11 and 12 years of age, the second molars, upper and lower, are acquired in equal proportions in the small number examined, too small to attain anything like accuracy. The canines, as in previous ages, present in the lower jaw first.

In girls, between the 4th and 5th year, the lower first molars are the first to emerge into position, as in the case of boys of the same age.

In girls between 5 and 6 years of age, the first lower molars are first acquired in the ratio of seven to one.

In girls between 6 and 7 years of age, the first lower molars first come into position, in the ratio of eight to one. The lower central incisors precede the upper central in the ratio of thirty to one, whilst the lower lateral incisors invariably appear first in this group.

In girls between 7 and 8 years, the first lower molars uniformly present first. The lower central incisors precede their antagonists in the ratio of sixty to one; the lower lateral incisors in the ratio of fifty to one. The first premolars appear first in this group in about equal proportions in each jaw. The same observation applies to the early eruption of the second premolars, and also to the canines at this early period.

In girls in their 9th year, the lower central incisors invariably appear first, and the lower lateral, in the ratio of twenty to one. The upper first premolars appear first in the proportion of five to one, whilst the second upper premolars cut the gum first in the ratio of six to one. At this age, the lower canines are first acquired in the proportion of five to one.

During the 10th year, girls acquire the lower lateral incisors first, in the ratio of eleven to one. The upper first premolars come first into position, in the ratio of two to one. The second premolars show first in equal proportions in each jaw, whilst the lower canines invariably emerge from the gum the first in this group.

In girls between 10 and 11 years, the upper first premolars appear first in the ratio of two to one. The upper second pre-

molars appear first in the ratio of five to one. The canines in this group invariably erupt the first in the lower jaw. The same remark applies to the second molar. In girls in their 12th year, both the first and second upper premolars first pierce the gums, whilst it is the lower jaw that has precedence in the case of the canines and the second molars. It will be found that the number of variations at each age steadily increases from 5 to 10 or 11 in both sexes. It will also be observed that girls are slightly more advanced in their dentition (six ages out of eight). In two ages only, 6 and 7 years, are boys found ahead of girls.

TABLE F.—*Number of Variations in each age.*

Boys.			Girls.		
Number.	Year.	Variation.	Number.	Year.	Variation.
34	5th	1	35	5th	3
126	6th	8	122	6th	7
172	7th	21	172	7th	19
222	8th	28	199	8th	34
176	9th	39	170	9th	41
154	10th	44	140	10th	54
67	11th	33	88	11th	53
10	12th	9	16	12th	13

During the course of this inquiry, I could not help observing that caries is extremely common ; indeed, it is quite the exception to find a perfect set of teeth, more especially among children over 10 years of age. This is largely due to want of care in the management of the teeth.

I have no doubt that the excessive use of sugar and tea is one of the principal causes of dental caries. Favoured by the temperature of the mouth, saccharine fermentation will terminate in the formation of butyric, lactic, and acetic acids, all of which exert a solvent action on the enamel. When this latter has given way, the dentine becomes an easy prey to the same process. The tannic acid found in tea exerts a similar chemical effect on the teeth. Small pieces of meat lying between the teeth will likewise contribute to the production of caries. According to some recent experiments, bacteria of a special form are an essential element in the production of dental caries ; one more illustration, if it were not unnecessary, to prove the pervading influence of micro-organisms in the ever growing class of enthetic diseases.—*British Medical Journal*.

On the Existence of Masses of Epithellum round the Roots of Adult Teeth in a Normal State.*

By L. MALASSEZ.

(Concluded from page 433.)

WE must now endeavour to determine which amongst all these productions are those that are most likely to be the cause of these *debris*.

We have seen that in the foetus they form three principal groups, quite distinct from each other, although forming part of the same system, and being united by frequent anastomoses, especially at the edge of the follicles. We might suppose that they all partake in the formation of these remains, since they are all found in the track of any tooth that is growing and coming through. The group belonging to the gum and the intermediate group might give rise to the outer ones, which would perhaps explain the double reinforcement of the *debris* shown on the drawing of which I have spoken above, one being immediately below the neck of the tooth, and the other a little lower. The enamel group would then by itself alone give rise to all the *debris* situated deeper down. We shall see, besides, when we examine the tumours, that those which seem to originate from the deepest remains tend to reassume the enamel type.

Now, is the existence of these epithelial remains a constant, a frequent, or only an exceptional fact? This is a question that I cannot exactly answer; all that I can safely say is that I have discovered them in all the maxillæ with teeth that I have examined. I must add that having had opportunity to examine the gums of various subjects under the microscope, I have often seen in them Serres' supposed tartar glands which, according to what we have just seen, would precisely constitute the superficial part of this system of *debris*. And lastly, I will point out that the like may be found in many new formations of the maxillary bones, and we shall see that even in this respect others probably exist, of which, however, I have found no traces in the maxillary bone that has been at my disposal. The existence of these remains would not

* Sur l'existence d'amas épithéliaux autour de la racine des dents chez l'homme adulte et à l'état normal (débris épithéliaux paradentaires), par M.L. Malassez.—("Arch. de Physiologie." 15 Février, 1885, No. 2.)

therefore seem to be an exceptional fact. This is, however, of little consequence to the pathologist. Their presence once proved to be possible ; it is easy to explain the origin of a certain number of epithelial tumours in the body of the maxillary bones.

There remains one last problem to solve, viz. : What name should be given to these epithelial masses that have not yet, so far as I know, been described ? As their origin and nature are, it seems to me, sufficiently established by what precedes, and as it is preferable to employ a terminology to which we are already accustomed, I propose to designate them collectively by the name of *paradontarium*, or by that of *debris* or *peridental epithelial masses*.

ON THE SO-CALLED ALVEOLO-DENTAL PERIOSTEUM.—All through this work I have used the expression “alveolo-dental ligament ;” because, as I said that commonly used (alveolo-dental periosteum) is as wrong from a physiological as from an anatomical point of view. I must, therefore, give my reasons for this opinion.

First of all, it must be observed that, if a veritable periosteum existed between the maxillary bone and the tooth, mastication would be absolutely impossible ; for this membrane would be subject to considerable pressure, which would be extremely painful on account of its abundance of nerves, and indeed in examining longitudinal or transverse microscopical sections comprising the tooth and the neighbouring parts of the maxillary bone *in situ*, nothing resembling a *periosteum* or any other enveloping membrane is visible in the dental-alveolar space ; one sees there solid bundles of fibres proceeding convergently from the inner walls of the alveolar cavity, and inserting themselves in the surface of the root of the tooth ; thus forming a kind of circular ligament, they penetrate, under the form of Sharpey's fibres, deep into both the maxillary bone and the cementum, just as in the case of tendinous insertions. Some of the outermost of the bundles that proceed from the edge of the alveolus, sometimes take an upward direction, sometimes a horizontal one ; but all the rest are generally attached to the maxillary bone higher or more superficially than to the *tooth*, so that the tooth is as though suspended by these bundles in the interior of the cavity of the alveolus ; mastication, therefore cannot produce that compression spoken of above, but simple traction, as is the case with ligaments. Further, between the tendinous bundles rather large interstices exist, filled with a loose or medullary cellular tissue communicating with the neighbouring

medullary spaces, and it is in these interstices that both the voluminous vessels and the numerous nerves of this region are found ; there is, therefore, no compression to be feared for these latter, neither need we be astonished at this rich vascular supply in a simple ligament since the interarticular fibro-cartilage of the hip joint is also very abundantly supplied with vessels.

Lastly, if we just glance over the data of comparative anatomy, we find that the teeth of many animals are not enclosed in alveolar crypts but are simply included in the mucous membrane of the gum. And that they are, moreover, attached to the maxillary bone by solid ligamentous bundles, which are analogous with our so-called alveolo-dental periosteum.

So, whether we consider it from a physiological or histological, or from a comparative anatomy point of view, there is no periosteum between the maxillary bone and the tooth, but there is a veritable ligament. The older anatomists were, therefore, quite right to see in it an articulation, a particular kind of synarthrosis, to which they gave the picturesque name of gomphosis.

This correct idea has since been abandoned by the greater number of French and foreign anatomists. We find it vigorously opposed by our two classics, Cruveilhier and Sappey. Cruveilhier contests that the teeth are not bones,* an opinion that Hunter† and others have already supported. But is not a notable part of the cementum to which the pretended periosteum is attached, allowed by all to be bony tissue ? Is not the dentine itself, histologically speaking, a particular kind of bony tissue ? that Koelliker has actually discovered in the skeletons of certain fishes ?

Sappey also bases his argument on there being no bone "nor," he adds, "any articular cartilages, ligament, synovial membrane, nor mutual interlocking." We have just seen that there is bone ; we have shown above that there is ligament ; as for the absence of articular cartilage, of synovial membrane and reciprocal interlocking, it is indeed a fact, but it cannot be concluded for that reason that there is no articulation ; synarthroses are certainly articulations according to all anatomists, and yet they have neither articular cartilages nor synovial membranes, and many of them, the sutures for example, show no reciprocal smooth interlocking.

Magitot, who has devoted much attention to these questions,

* *Traité d'Anatomie Descriptive*, 4th edition, Vol. I, page 289.

† *Traité des Dents* par Richelot, Vol. II.

considers that in its physical characteristics the anatomy of the dental periosteum resembles that of the periosteum of bone; still he recognises that "it differs from it in the complete absence of elastic elements and in the great number of its nervous plexures." Then he adds, a few pages further on, that the dental periosteum is "an organ not assimilable to the true periosteum itself on account of its structure and its functions." But he might have been heard to say at the Biological Society last year: "I cannot really refuse the name of periosteum to a fibrous band which covers a bony layer, the cementum, and which participates in all the morbid phenomena of the ordinary periosteum."

The moderns, however, have not all allowed themselves to be carried away by this tide of opinion. Koelliker, some time ago observing on a section of a cat's maxillary bone, the dental periosteum of an incisor of the first dentition, compares it to a true ligament, and he presumes that this same disposition would be met with in the permanent teeth.

Aguilhon de Sarran, on the strength of his examinations of human teeth and those of different animals, has stated very clearly in a note on gingivitis, and later on in another on the cysts said to be of periosteal origin, that the so-called alveolo-dental periosteum does not resemble in any particular the ordinary periosteum, and that in reality it belongs to the ligamentous system.

Lastly, Ranvier in his lectures of 1883-4 at the Collège de France (not yet published) showed by means of specimens that no isolable membrane exists between the tooth and its alveolus such as surround the longer bones; that the alveolar cavity is only an enlarged medullary space, communicating with the neighbouring spaces; that fibrous or adipose marrow is found there, and also—and this it is what gives it its most special aspect—vessels, nerves, and solid fibrous bundles, which proceed from the sides of the alveolar cavity and insert themselves in the dental cementum, and penetrate into the bony tissue in the same manner as Sharpey's fibres.

This is, at any rate, the conclusion which will be arrived at by all who will examine under the microscope, good longitudinal and transverse sections of healthy teeth without disturbing their implantation in their sockets.

ANNOTATIONS.

WE regret to be obliged to call attention to the unsatisfactory nature of the statement made by our Treasurer at the recent meeting of the Representative Board. Mr. Parkinson reported that there were still nearly a hundred and fifty members who had not yet paid their subscriptions due in January last. No doubt each member thinks that his own subscription is a small matter, and a few weeks' delay in its payment cannot make much difference. In the aggregate, however, these procrastinating individuals not only put the Association to some expense in the printing and postage of circulars, &c., but also introduce an element of uncertainty into its finances which seriously hampers the action of the executive. We wish they could be induced to bear this in mind.

The list of papers set down to be read at the Cambridge meeting, coupled with the list of demonstrations to be given on the second day of the meeting, present a formidable amount of work to be disposed of, and we trust that by regularity and punctuality on the part of members and visitors, the Executive may be assisted in their arduous duties.

WE do not know if the various operators are to provide their own patients, or if the local committees have to see to this among their many other duties. If this work fall on the gentlemen of Cambridge, we hope that those members who are to give the demonstrations will come to a clear understanding with the Committee on the subject, as there will be a considerable number required, and the selection will require some judgment if the demonstrations are to be seen to advantage. As there is not the remotest likelihood of a town and gown riot, we fear that there may be some difficulty in securing a subject for Mr. Newland Pedley. Will any member be accommodating?

WE believe that some discussion is likely to arise on the question of the time of holding the Annual Meeting of the Association. At the outset the Bye-Laws were left intentionally vague on this point, inasmuch as the period adopted was necessarily experimental, and although we hope that no definite day will be fixed by law, still we are of opinion that the question may with advantage be considered at a General Meeting, seeing that the Association

has grown in numbers, and that the members have now the experience of five annual meetings to guide them in the formation of a definite opinion on this all-important subject.

THE American Dental Society of Europe will hold its fourteenth Annual Meeting at Berlin, on the 25th, 26th, and 27th inst., under the presidentship of Prof. W. D. Miller. The following are the titles of some of the papers to be read: "Hygiene in its relation to the practice of dentistry," by Dr. E. de Trey. "On the artificial production of dental caries," by Dr. E. Foerster. "The determination of materials for filling teeth," by Dr. Wm. Sachs. "The minute changes in the process of absorption," by Prof. W. D. Miller. "Notes on the nature and treatment of alveolar necrosis," by Dr. L. Goettinger. "Secondary lesions associated with diseases of the teeth," by Dr. C. H. Abbot. *Questions for Discussion*: "What experience has been made in the insertion of fillings after the rotation method?" "In what cases may cocaine be used to advantage?" One advantage of a change in the date of our Annual Meeting would be that it would no longer clash with that of our American fellow-practitioners, and this is, for several reasons, a by no means unimportant consideration.

NOT very long since we had to announce that a well-known member of our profession had determined to retire from practice and devote himself to the service of the Church. We now hear that another equally well-known and popular practitioner is about to follow the same course. There have been several cases in which members of the medical profession have attained to high positions in the Church, and possibly we may one of these days have the pleasure of chronicling the consecration of a bishop who is entitled to sign himself L.D.S. And if our seceding brother should be as successful with his sermons as he has been with his post-prandial speeches, there is at least a fair chance of our suggestion being realised.

As will be seen from the letter which will be found under the head of "Correspondence," the deservedly popular Secretary of the Midland Branch is at home again, and, we are pleased to add, much improved in health by his recent trip to the States. On the eve of his departure homeward, a reception was held at the residence of Dr. B. Lord, West Twenty-eighth Street, New

York, to enable a few of the leading dentists of that city and neighbourhood to bid farewell to Dr. Waite. Amongst those present were : Drs. Dwinelle, Kingsley, Atkinson, Bogue, Dodge, Davenport, Cook, Payne, Brockway, and Howe, of New York ; Drs. Hill, Jarvie, &c., of Brooklyn ; Dr. J. Foster Flagg, of Philadelphia ; Dr. J. McManus, of Hartford, and several others. A very agreeable evening was spent, and many very cordial feelings expressed towards the professional brother from the old country, and those whom he represented.

AT the last meeting of the West of Scotland Branch, a discussion took place with reference to the quality of the gum enamel and body now offered to dentists, as compared with that originally supplied. It seemed that all those who used it had experienced of late great difficulty in obtaining satisfactory results. Various devices were detailed as having been tried, under the idea that the fault rested in the working or heating, but without any sensible improvement. That the heating was not to blame appeared clear from the evidence of a member who had always used the coke furnace, and who reported that whilst his method of working had been precisely the same throughout, the results latterly had been extremely disappointing, not one case equal to the earlier ones, and very few fit for use. He showed a lower piece of considerable size and weight, one of his early productions, which was quite free from flaws and defects of any kind, but all the later ones were porous and cracked to such an extent that few of them could be used. Perhaps Mr. Verrier may have something to say on this subject in the course of the demonstration he has promised to give at Cambridge.

AT the examinations held last month at the Royal College of Surgeons of Edinburgh, the following gentlemen passed the first professional examination for L.D.S., viz. : Messrs. Gordon Reid Shiach, of Elgin ; Arthur Cocker, of Halifax ; and Frank Gordon Allen, of Ripley, Derbyshire. And Messrs. Thomas Prettie Ritchie, of Edinburgh ; David Browne, of Montrose ; and Andrew Burns, of London, passed the final examination, and were admitted L.D.S. Edin.

ONE of the most striking signs, in our opinion, of the improvement which is taking place in the dental profession, is the rapidly increasing number of local societies. The latest addition to the list is the Manchester Odontological Society, which has just been

organised with an excellent list of officers and a very commendable set of bye-laws, under which every respectable member of the profession is eligible for membership. It may be confidently expected that the society will do good service, both as a means for the promotion of friendly intercourse and for the diffusion of professional knowledge and experience.

THE mere fact that this movement has been warmly taken up by the profession in Manchester, and that the Society has been successfully launched, shows that the present state of the profession in that important centre must be very different from what it was in past times, and even within the last year or two, and we hope that the more intimate personal acquaintance which such a Society brings about, will quickly clear away any remains of the jealousy and ill feelings which, if report speaks truly, at one time prevailed to a very undesirable extent amongst the dental practitioners of the Cotton Metropolis.

WE have been reminded that the declaration against advertising, signed by licentiates in dentistry of the Royal College of Surgeons of Edinburgh, is even more stringent than that of the Irish College to which we referred last month. It runs as follows :—

“I hereby promise faithfully to maintain and defend all the rights and privileges of the Royal College of Surgeons of Edinburgh, and to promote its interests to the utmost of my power. I promise, in the event of my admission as a Dental Licentiate of that College, to refrain from advertising or employing any other unbecoming modes of attracting business, and I shall not allow my name to appear in connection with any one who does so. I also promise to obey all the laws of the said Royal College, made or to be made.”

WE are aware that there are many members of the profession, who think that the Colleges might use their power of revoking the diplomas of advertising licentiates more freely than they have hitherto done. It must be remembered, however, that to revoke a license to practise is a serious matter, and we can quite understand that the Colleges are unwilling to proceed to such an extreme until it is quite evident that all other means have failed. At the same time, one cannot have a very high opinion of the moral character of the man who signs such an undertaking as that to which we have called attention and then deliberately disregards it, nor will he deserve much sympathy should the Colleges at last find it necessary to adopt more severe measures.

WE are sorry to find that some of our American correspondents—Dr. Taft amongst them—are still of opinion that we have done some injustice to the University of Michigan. We have admitted that its degree is a good one and that we have no fault to find with the Medical Council for recognising it, whilst, with regard to our suggestion that the curriculum might be improved, Dr. Taft practically admits this. We learn from Dr. Chas. Cunningham that less than half the students succeed in obtaining their degree within the minimum time allowed, and we still venture to think that of those who do so, many would be benefited were they assigned a somewhat longer period in which to digest and assimilate the large and varied store of knowledge to the possession of which their degree is supposed to certify.

THE following is the conclusion of Dr. Taft's letter, with every word of which we heartily concur, and we can assure him that our only object in referring to the subject was to strengthen his hands and those of his friends who are now actively endeavouring to remove some of the weak points which have become apparent in the American system of Dental Education :—

The aim of this institution is to elevate the standard of the profession ; an effort is being put forth to this end, as rapidly as it is possible under the circumstances. Advanced steps are made every year, the preliminary examination is made more and more rigid, as is also the final examination ; and, notwithstanding this, I feel that we are much below the desired point of attainment. The requirements of this college are much in advance of any other college in this country, except, perhaps, that of Harvard University, and even that is not the equal of this in one respect, in that they do not require a preliminary examination. In our efforts for progress we have encountered many embarrassments, and some of them from those who ought to be our friends, and upon whom we ought to be able to rely for sympathy and co-operation. I shall be pleased to hear from you, and more pleased to learn that, in penning the paragraph referred to, no unkind feelings were entertained by the writer.—Yours very truly, J. TAFT.

WE are sorry to hear that serious trouble has arisen in connection with the arrangements for the next meeting of the International Medical Congress to be held at Washington in 1887. Most of the members of the Executive Council, whose names are well known on this side of the Atlantic, have resigned, and a general feeling of anxiety with regard to the future prevails. The Section of Dental and Oral Surgery has been dropped. It has even been suggested that the decision to hold the Congress at Washington should be reconsidered, and that Berlin should be substituted as the place of meeting. We trust, however, that the medical profession in America will at once see the importance of settling their differences amongst themselves, and that matters may yet be brought to a successful issue.

CORRESPONDENCE.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Across the Herring Pond.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR.—I do not propose to weary you or your readers by recounting the "oft-told tale" of a "trip to America," but should like, with your permission, to call the attention of our brethren at home to some of the advantages and pleasures offered to those who brave the "dangers of the deep" and seek rest and relaxation from a transatlantic voyage.

First of all, the time required for a journey to the States is now so much shortened, that an ordinary holiday of a month would afford abundant space for a flying visit. Eight days, a little more or less, is the average time of the mail steamers between Liverpool and New York; two weeks on the other side would enable a visitor to see Philadelphia and Washington (giving a day to each)—then run up to Niagara, where two days might well be spent—then take steamer across Lake Ontario to Toronto, and on down the St. Laurence to Montreal—passing through the Thousand Island and Rapids, all by daylight—two days more; half a day would give a good idea of Montreal, and the afternoon train would place one at the head of Lake Champlain, down which the steamer sails every day, connecting with Lake George, boat to Fort William Henry Hotel (one of the loveliest spots on this earth!) a day spent here, and a short ride of 30 miles to Saratoga in the evening—next day devoted to the celebrated "springs," and the evening train to Albany, about 34 miles. The following day, descend the Hudson River by splendid steamer, passing through the world famed scenery, and reaching New York at 6 p.m.

There would remain two days still for viewing New York City and harbours, the wonderful "Brooklyn Bridge" and that beautiful "City of the Dead," Greenwood Cemetery—the whole trip disclosing a succession of scenes, novel, surprising, and magnificent—refreshing to the physical sense, and awakening thoughts and emotions of a most elevating kind.

Another consideration for the dentist is presented by the fact, that our brethren in the States are always ready to receive and to welcome their English friends with open arms. Not only do they delight in paying attentions of an ordinary kind, but they seem to put forth special efforts in order to promote the highest possible enjoyment of visitors from "the old country."

Beside this, they cheerfully enter into professional conversation, open up the resources of their own experience, and are not only willing, but delighted to impart any ideas, or methods, or experiments with which they are familiar, so that a man must be very unfortunate indeed if he does not acquire some professional knowledge that will be of lasting service.

One more point. Englishmen are not aware how ignorant they are concerning their brothers in America. It is amazing how thoroughly Americans understand and keep stock of English affairs—the amount of intelligent criticism one may hear in travelling upon any matter in which England is interested is perfectly surprising, and, as an Englishman, I was repeatedly cheered and encouraged thereby, but, at the same time, I was greatly humiliated by my own inability to criticise or discuss kindred topics relating to American affairs.

These things ought not so to be ; we are brothers, more closely interwoven are our interests than those of any other peoples on earth. We ought thoroughly to understand, and heartily to appreciate each other's position, so as to be in perfect sympathy one with the other ; and nothing so much enhances our mutual understanding, nothing so fully promotes a fraternal relation, as frequent personal intercourse and actual contact face to face and soul to soul.

If any brother can spare £50 or £60, for a holiday, and wishes to invest it to the best advantage, I would say, let him take a month and run across to the States.

Yours very truly,

W. H. W.

On the Use of the Key.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—“There is a young man who wants a tooth out ; I have tried, and can't get it out,” my assistant said to me a few days ago. Upon examination, I found my patient a tall, bony young fellow with unusually large teeth. The tooth in question was the first upper molar, entirely broken down on the palatal side, and only a feeble low jagged edge remaining on the buccal. I tried forceps, and then elevator, but with very partial success, only slightly loosening the mass. I concluded that in some respects it must be abnormal ; that it was oblique in position was evident, but such resistance implied that the fangs must be abnormal in number or in direction, or that they were attached to the socket with remarkable tenacity. The patient bore pain well, but could not avoid placing a ponderous hand upon the operator's wrist at the most critical moment ; this, of course, increased the difficulty. I thought of the well-abused “key.” The case looked suitable for it, and, as a last resort, I drew it from its hiding-place. Padding the fulcrum with cotton wool, I placed it slightly below the neck of the palatal fang, anchored and held securely the claw, cautiously yet rapidly applied the turning force, and out sprang the enemy armed with three uncommonly large fangs. The heavy hand of the patient seized that of the operator, but happily “too late.” Then followed a re-assuring coincidence. My patient had just gone, when I opened my copy of the JOURNAL for March, and read, to my surprise, Dr. Fillebrown's paper on “The Use of the Key.” Now, I had not used the said in-

strument of torture for years, have indeed rarely used it ; but my mortification in being "called back" to what has been so generally denounced as barbaric treatment, was checked by finding at least one modern professor defending and candidly avowing his indebtedness to a discarded and despised old friend. Now, I do not wish to imply that in all such cases as the one narrated the key is the best "friend in need." Many similar remnants I have removed with the elevator. Some operators would have preferred the dividing forceps, and removed the fangs separately, but in the case referred to, looking both at the patient and operation, I do not think any other method would have succeeded so rapidly, or with so comparatively little pain.

Dr. Fillebrown confines the use of the key to the eight bicuspid, to the roots of lower molars, and to lower wisdom teeth. My own very limited application of the key has been almost the reverse of this. I have hesitated to apply it to bicuspid because of the comparative ease with which I have known it to loosen, if not bring out two, instead of one. This might be owing to the choice of too broad a claw. The roots of lower molars may generally be best removed with the elevator, so I have found, as also frequently may lower wisdom teeth. But the teeth to which I have applied the key with success have been the upper left molars (first and second) and upper canines,—always placing the fulcrum inside. Your readers will doubtless endorse your "annotations" upon this subject. The use of the key will not, and ought not, to become general, yet there are cases for which it is admirably adapted, and with careful and skilful practitioners "all of the olden time," it has earned a good report.

Yours faithfully,

EDWIN COX.

Auckland, New Zealand.

May 25, 1885.

VACANCY.

THE appointment of Tutorial Dental Surgeon in the Edinburgh Dental Hospital and School will shortly be vacant. Salary, £30. Applications received till 1st October. Address, "The Dean," 30, Chambers Street, Edinburgh.

TO CORRESPONDENTS:—

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &c.

HOSPITALS.	DENTAL SURGEONS.	ASSIST. DENTAL SURGEONS.	DAY AND HOUR OF ATTENDANCE.	ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewbank ; Mr. Paterson ...	Mr. Mackrell; Mr. Ackery ...	Tuesday and Friday, 9 a.m. ...	Mr. Mills.
Charing Cross ...	Mr. Fairbank ...	... ..	Monday, Wednesday & Friday, 9 a.m.
St. George's ...	Mr. Winterbottom ...	... ..	Tuesday, 9 a.m....
Guy's ...	Mr. Henry Moon ...	... ..	Tuesday and Thursday, 12.30 noon ...
King's College ...	Mr. S. H. Cartwright ...	... ..	Tuesday and Friday, 10 a.m. ...
The London ...	Mr. Ashley Barrett ...	... ..	Tuesday, 9 a.m....
St. Mary's ...	Mr. Howard Hayward...	... ..	Wednesday and Saturday, 9.30 a.m....
Middlesex ...	Mr. Bennett ...	... ..	—
St. Thomas's ...	Mr. Ranger ...	Mr. C. Rogers ...	Tuesday,	
University College...	Mr. Hutchinson...	Mr. Chas. Truman ...	Wednesday, 9.30 a.m....	
Westminster ...	Dr. Walker	Wednesday and Saturday, 9.15 a.m. ...	Mr. Bailey. Mr. Bird. Mr. Mills. Mr. Braine. Mr. Bird. Mr. Bailey. Mr. Glassington. Mr. Tyrrell. Mr. Hewitt. Dr. Winslow. Mr. Tyrrell. Dr. Winslow.
London Dental ..	Mr. David Hepburn ...	Mr. Snale ...	Monday, 9 a.m....	
" "	Mr. R. H. Woodhouse...	Mr. Hern ...	Tuesday, 9 a.m....	
" "	Mr. Dregson ...	Mr. Arthur S. Underwood ...	Wednesday, 9 a.m.	
" "	Mr. Storer Bennett ...	Mr. Claude Rogers ...	Wednesday, 9 a.m.	
" "	Mr. Henry Moon ...	Mr. George Parkinson ...	Thursday, 9 a.m.	
" "	Mr. F. Canton ...	Mr. Lawrence Read ...	Friday, 9 a.m. ...	
National Dental ...	Mr. Henri Weiss ...	Mr. Truman ...	Saturday, 9 a.m.	
" "	Mr. Alfred Smith ...	Mr. Willoughby Weiss ...	Monday, 9 a.m....	
" "	Mr. G. J. Williams ...	Mr. Giles Bradshaw ...	Tuesday, 9 a.m....	
" "	Mr. A. F. Canton ...	Mr. Marcus Davis ...	Wednesday, 9 a.m.	Mr. Bailey.
" "	Mr. T. Gaddes ...	Mr. H. G. Read ...	Wednesday, 9 a.m.	
" "	Mr. Harry Rose ..	Mr. G. D. Curnock ...	Thursday, 9 a.m.	
" "		Mr. W. R. Humby ...	Friday, 9 a.m. ...	
			Saturday, 9 a.m.	

MEETINGS FOR THE MONTH.

British Dental Association.—Annual Meeting of Western Counties Branch, at Hereford, August 24th ; Annual General Meeting of the Association, August 27th, 28th and 29th, at Cambridge ; Publishing Committee, August 29th.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY

No. 9.

SEPTEMBER 15, 1885.

VOL. VI.

August 27th, 28th, and 29th.

UNDER this title we appealed in our last issue to the members of the Association to rally round the Executive, and by their presence make the Cambridge Meeting an unqualified success. The prospects which we held out to them were certainly sufficiently tempting, but a perusal of the Agenda paper on which our remarks were founded, afforded no idea of the fulness of the realization which awaited us. When we say that every detail of the extended programme issued by the Local Reception Committee in the name of the Eastern Counties' Branch was carried out to the letter, we give but a meagre idea of the excellence of the arrangements and of the faithfulness with which every promise was kept.

The attendance of members was large and influential, the number present being in excess of any previous gathering. Without at all overlooking the attractions

afforded by the town of Cambridge, we believe that this fact may be taken as indicating a growing interest in the work of the Association, an opinion which the well filled appearance of the large hall of the Union Society during what may be called business hours tended strongly to confirm.

The report of the proceedings which we shall publish, cannot fail to gratify all well-wishers of our profession, more especially those who have, through much discouragement and with much trouble to themselves, worked on from year to year with a steadiness of purpose which has more than merited the success which has been achieved. Year by year we have chronicled the progress of the Association in numbers, in strength, and in influence, and this last General Meeting adds yet another event to the list of our successes. The presence of Sir Edwin Saunders and of the President of the Representative Board, Mr. John Tomes, showed that their interest in the progress of the Association has not been dulled by time or increasing years, and the acceptance of the Presidentship of the Association by the one, and the re-election of the latter to the important post of President of the Representative Board, show that we may still look forward to an undiminished share of their sympathies, and to a continuance of the counsel and guidance so much needed and so freely given by Mr. Tomes in the most delicate and difficult questions arising out of our very recent efforts to establish ourselves as a profession worthy of public confidence and support.

The presence of these men amongst us and the consideration which we have received from the authorities of every place we have visited, whilst they justify our course in the past, make us also hopeful as to the future. We have still some difficulties to contend with, and fresh ones may arise. The report of our Treasurer would seem to point to

one in the lethargy and indifference of our own members, though one which, we trust, a better appreciation of what has been done for them during the last few years may speedily remove.

One great, and indeed paramount object of the Association, is to inform the public of the existence of a true dental profession, willing to serve them in a professional manner, and the increased publicity given to our proceedings by the public press is the surest and most effective means of securing this end. It is therefore with extreme gratification that we call attention to the reports of our doings at Cambridge published in an extended form by the local press, and to the admirable epitomes which have appeared in nearly every London daily paper, the *Times* not excepted, and in many of the provincial papers. Surely an event of this kind is well worthy the attention of those who give us but lukewarm support, and of those who hold aloof from us altogether, and say that the Association does nothing. The public press does not usually condescend to notice bodies which exist only in name and serve no useful purpose; and the fact that we have this year secured the notice of the leading journals of the country, shows that we must have accomplished something in the eyes of those who are very disinterested and somewhat severe judges of such matters.

Dr. Waite's Specimens of Prehistoric Dentistry.

WE have great pleasure in calling the attention of our readers to the graphic representations of these interesting specimens, which will be found at p. 512. That shewn at fig. 1 consists of a gold band which enclosed the two upper laterals, and which carries two artificial centrals. Fig. 2 consists of a gold band enclosing the right upper canine and left central; it carried an artificial right lateral and central, which have, however, disappeared. For a fuller description we must refer our readers to p. 316 of our issue for May last.

ASSOCIATION INTELLIGENCE.

Western Counties' Branch.

THE Seventh Annual Meeting of this Branch was held in the rooms of the Woolhope Naturalists' Field Club, at the Free Library, Hereford, on Monday the 24th ult. Amongst those present were Messrs. G. C. McAdam, of Hereford, the President-elect; W. A. Hunt, of Yeovil, Ex-president; C. Spence Bate, F.R.S., and F. H. Balkwill, of Plymouth; Henry B. Mason (*Hon. Sec.*), J. T. Browne-Mason (*Treasurer*), E. E. Brand and Henry Mallet, of Exeter; R. Rogers and H. P. Fernald, of Cheltenham; C. A. Hayman and T. Cooke Parson, of Bristol; G. B. Pearman and F. Youngman, of Torquay; A. G. Levason, Peyton Levason and A. Robertson, of Hereford; W. H. Waite, Liverpool; Caleb Williams, Leamington; W. E. Harding, Shrewsbury; Geo. Beavis, Newport, Mon.; S. Greatrex Yates, Ross; Jas. Parkinson, Augustus Cronin, W. Penfold, and R. Harrison, of London.

Mr. W. A. HUNT having taken the chair as President, the Hon. Sec. read the minutes of the last meeting which were duly confirmed.

The PRESIDENT announced that the Council had elected Mr. Sidney Greatrex Yates, of Ross, as a member of the Branch.

The HON. SEC. then read the report of the Council as follows:—

The Council have pleasure in presenting this report to the Seventh Annual Meeting of members.

The meeting last year at Torquay, although from various causes not so largely attended as some previous ones, several of our more prominent members being on their way to attend the meeting of the British Association in Canada, was nevertheless very successful. In addition to the President's Address, papers and notes of cases were read by Messrs. W. V. Moore, G. B. Pearman, F. H. Balkwill and E. L. Keys, and demonstrations given by Mr. Browne-Mason, Mr. Verrier and Mr. Briggs.

During the year ten gentlemen have ceased to be members of the Branch, four having been removed from the list of the Central Association for non-payment of subscriptions, one by the Branch for the same reason, four have resigned and one has died. The Council have, including to-day, elected seven new members, and the number now on the list is seventy-five. The Council have met

once since the Torquay meeting, at Bristol, in April, but the only matter before them which requires comment was a communication from the Hon. Sec. of the Dental Benevolent Fund, inviting the Branch to form a local committee of the Fund, and this it was decided to leave for the consideration of the meeting to-day.

The Council have had it suggested to them that it would tend to the increased usefulness and popularity of the Branch if the transactions were published separately for circulation amongst the members. They will be glad to hear the opinion of the meeting on the subject.

The Council propose that the next annual meeting be held at Exeter, with Mr. J. T. Browne-Mason of that city as President.

The TREASURER (Mr. J. T. Browne-Mason) then presented his report. The receipts, including a balance of £12 3s. 5d. from last year, amounted to £29 8s. 5d., and the expenditure during the year had amounted to £17 6s. 8d., leaving a balance in hand of £12 1s. 9d.

Messrs. Fernald, Cheltenham, and James Parkinson, London, were chosen to audit the accounts, and subsequently reported that they had done so, and found them correct.

On the motion of Mr. BALKWILL (Plymouth), seconded by Mr. R. ROGERS, of Cheltenham, the reports were unanimously adopted.

Mr. SPENCE BATE said that the rule was that the three members of the Council who had attended the fewest meetings during the year should retire, and accordingly Messrs. Palmer, of Cheltenham, W. B. Tuck, of Truro, and D. Watson, of Torquay, retired. In their place he begged to propose the election of Messrs. H. P. Fernald, of Cheltenham, J. H. Gartrell, of Penzance, and G. J. Holme, of Malvern.

Mr. MALLET (Exeter) seconded the proposition, which was carried.

The SECRETARY then read a letter which he had received from Mr. Oakley Coles, the hon. secretary of the Dental Benevolent Fund, who stated that he had been requested by the Managing Committee of the fund to write to the hon. secretary of each of the Branches of the Association, and suggest that the president, treasurer, and hon. secretary of the Branch, should form themselves into a local committee of the Benevolent Fund. He hoped that the executive of the Western Counties Branch would be able to accede to this suggestion.

The PRESIDENT said the letter had been received in November last, but it had been thought better to let the matter stand over until it could be decided by the members generally. It was for them to say whether they would agree to the suggestion or not.

Mr. R. ROGERS said he had great pleasure in proposing that the suggestion be adopted by the Branch. He was quite sure that the Fund would prove a great benefit to the poorer brethren, and it ought certainly to be much better supported than it had been. He himself knew of several cases in which great benefit might be conferred upon really deserving members of the profession if only the Fund was large enough for the work it ought to do.

Mr. C. A. HAYMAN seconded the resolution, and asked for some information as to the way in which relief was to be given, and the amount which would be voted to a deserving case.

The PRESIDENT said the Fund had at present an invested capital of £600, and an annual income from subscriptions of about £200; that was the extent of its capabilities for relieving distressed brethren. Perhaps Mr. Parkinson could give some further information.

Mr. PARKINSON said that at present the Fund was not nearly large enough to meet the demands made upon it; members would be surprised at the cases which came before the Committee. Unfortunately his mouth was sealed as to the recipients of relief, but if by the exercise of local influence they could obtain additional subscriptions it would be a great thing.

Mr. BALKWILL said he supposed one object of these officers being appointed was that they would be able to exercise some discretion in local cases?

Mr. PARKINSON: Certainly.

Dr. WAITE said he believed the primary object was to obtain information from the officers of the Branches with reference to cases in distant parts of the country, as to the merits of which the Committee could have no personal knowledge. With reference to Mr. Hayman's question, he might state that in several cases the Committee had found it a wise course not to give money at all, but to provide for the education of orphans, and afterwards to provide such boys as thought of entering the dental profession with the means of obtaining a diploma; many of the dental hospitals had agreed to give instruction free in such cases.

Mr. BROWNE-MASON supported the resolution, adding that he personally should be pleased to give any aid he could to the Committee.

Mr. A. G. LEVASON remarked on the indifference with regard to the Fund which appeared to prevail. Considering that there were nearly three thousand members of the profession practising in the United Kingdom, £200 a year seemed to be a very poor amount to be received for such an excellent object.

The PRESIDENT suggested that members might pay a small subscription to the Benevolent Fund annually with their subscription to the Branch, the former being handed over in bulk by the Treasurer of the Branch to the Committee of the Fund. He thought this would be a simple and practical arrangement.

The resolution was then agreed to.

The President said some of the members had suggested that the work of the Branch should be published in a separate volume to be called "The Transactions of the Western Branch of the British Dental Association." The question was whether it would be advisable to do so, whether the reports in the Journal were not sufficient to meet the ends they had in view, and whether it was necessary to go to the trouble of publishing their transactions in a separate form. He himself could not see much good in it, but if any of those present would like to state their views, he should be glad to hear them.

Mr. SPENCE BATE said he presumed the idea was that as all the papers read became the property of the parent Association, the Branch lost its identity, and that it was desirable to go back to the vigour of its youth and its identity, if possible. Things could not be worse than at present, for he understood that not a single paper had been sent in. If that was so they could not publish any Transactions this year, for they had none to publish.

Mr. PARKINSON pointed out there could be no difficulty in obtaining reprints of any report they sent to the Journal, and if they desired to issue it as a separate publication, they could do this much cheaper through the printers of the Journal than they could do it themselves, since the matter would be already in type.

Mr. BROWNE-MASON said there would be no difficulty in carrying out the idea, if it was the wish of the Branch. They had only to give notice to the editor of the Journal, and he

would have the type kept standing and as many copies printed off as they wished. The cost would not be great, since the chief expense was the setting up of the type.

Mr. H. MALLET asked what would be the advantage of having their transactions in a separate form? If those who proposed this would state the advantages that were to be derived from it, the meeting would be in a position to decide whether it would be advisable or not.

Mr. LEVASON remarked that as members of the Branch they were bound to be members of the Central Association, and as such they were entitled to receive a copy of the Journal monthly. This contained all their transactions and most of the papers which were read, not only at their own, but at all the Branch meetings, and at those of the Central Association. He thought, therefore, that it would be an unnecessary expense to print their papers again, especially as they had just heard that the Benevolent Fund was in such a poor way. If they found they had more money than they knew what to do with, he would propose that they should send a portion of the balance to the Benevolent Fund, rather than expend it in the unnecessary printing of papers, which they already had an opportunity of reading in the Journal.

Mr. BROWNE-MASON said he could not see that members would take a greater interest in reading papers because they were bound up separately than when they appeared in the Journal of the Association which everyone received. If they could divert their surplus funds into the channel Mr. Levason had suggested, he thought it would be far wiser to do so than to gratify themselves by the printing of pamphlets for private circulation.

Mr. COOKE-PARSON said the idea was to get a fuller report of their proceedings, the Journal only gave an abridged report.

Mr. BROWNE-MASON: the papers are published *in extenso*.

Mr. HAYMAN suggested that as they had no papers to publish, the matter should stand over for another year.

Mr. ROGERS seconded this proposition, and it was agreed to.

The PRESIDENT then delivered a short valedictory address.

A year had passed since he offered them his congratulations on their meeting together once more to cement good feelings and deepen the foundations for further profitable and social intercourse. He thought meetings held oftener than once a year,

and of a shorter and less formal nature than their annual meeting, would be most desirable, yet on the other hand their Branch stretched over such a wide area, and its members lived so far apart, with but few thickly populated districts near them, that at present more frequent meetings seemed impossible. Nevertheless he thought they had made progress.

A practitioner whom he was urging to join the Branch once said to him, "but when I have paid my subscription what shall I get out of it." Truly that remark had a strong flavour of selfishness about it. His reply naturally was, "Your first duty is to be anxious to see what you individually can contribute to the general good." Did they not all owe a heavy debt of gratitude to the generous labours of those who had gone before them, and were they selfishly to absorb all that useful knowledge for their own personal ends and never take the trouble to contribute one iota in return? No, verily; such a sentiment was quite unworthy of, and quite out of character with, the true spirit which should govern the members of a body which they were striving to consolidate into a scientific and liberal profession. On the other hand, he could assert without fear of contradiction that never had a man acted towards his brethren on the lines just laid down without advantages of various kinds direct or indirect resulting to him. Even in the short history of their own Branch every man there could, he believed, speak of many a friendship formed, many pleasant and valuable introductions made, many a valuable paper listened to, many valuable hints received, and much valuable knowledge gained. He would, then, repeat the advice he had given last year. Let them strive by every means to advance, not only the branch of the profession which they had chosen, but also their own individual culture; they would thus enjoy the greatest pleasure which upright and honourable minds could conceive, viz., that of increasing the usefulness and raising the condition and respectability of the body to which they belonged.

It was not his intention to detain them longer, but he had still the grateful task of calling their attention to the valuable services rendered to the Branch by their Hon. Secretary, Mr. Henry B. Mason, and by their respected Treasurer, Mr. Browne-Mason, of thanking them all for the kindness with which they had supported him during his Presidentship, and of vacating the chair with the knowledge that it would now be occupied by so able a man as his friend Mr. McAdam.

Mr. SPENCE BATE proposed a vote of thanks to the President for his services, observing that he was himself an embodiment of the sentiments he had expressed in his address ; he did not know any one of their body who had shown a more unselfish character than Mr. Hunt.

Mr. PARKINSON seconded the resolution, remarking that he fully endorsed what Mr. Spence Bate had said.

Mr. HUNT having briefly expressed his acknowledgements, vacated the chair, which was taken by Mr. McAdam, who proceeded to deliver the following address :—

GENTLEMEN,—The first duty I have to perform is to express my high appreciation of the honour you have conferred upon me in electing me as your President. That you could have chosen one more fitted for the office will, I am afraid, be only too obvious to you at the end of my presidential year, but that you could have determined on a better city than Hereford to hold this meeting in I am loth to admit. I give you all a cordial welcome to its ancient walls, alas, now all but removed by the sanitary but destroying wave of street improvements. Hereford is one of the five most ancient cities in England. It is mentioned that the city was in existence even before the year 676, for during the reign of Penda, King of Mercia, who had embraced Christianity, a Synod was held here for the purpose of creating a new see. Although agreeing with the place of meeting, I think we are very unfortunate in the date. Owing to its close proximity to the annual meeting of the parent association we have been robbed of the presence of all but one of the London men who have heretofore honoured us with their company. With these few remarks I feel very much inclined to stop. I hesitate to address you when every subject on which a president might dilate has been so thoroughly thrashed out in former addresses. It is almost impossible to avoid the stigma of plagiarism in opening one's mouth before those who have attended not only all of our meetings, but those also of the parent and kindred societies. There is, however, one subject that I have at heart, which is to defend the Association from the charge brought against it of being a mutual admiration society. The class of individuals who bring this accusation are those who are content to live and work on in the narrow sphere of self-sufficiency—having no wish to be on friendly terms with their fellow-workers, and valuing as nought the scientific intercourse which they designate as “shop.” I hold

that in no branch of surgery is it so desirable that those who are practising it and who love it should meet together for the purpose of comparing their views and researches and debating on them. Some of us may have fully embraced Sewill's doctrine of the etiology and pathology of dental caries, others may still believe in a "Retrograde Metamorphosis." Again, there are the advocates of the electric mallet and cohesive gold, who will find opponents who are true to hand-pressure and cylinders. Discussions on these methods and on incidents of office practice, and the exhibition of many little inventions often apologised for by the inventor as being thought by him too trivial to mention, but which have often effected an immense saving of time, are very valuable to the dental surgeon. It is, however, not so much in papers or essays that we learn what we most want, but by our casual chit-chat on our excursions, in the smoke room, anywhere, in fact, where we are in private. These are our objects, and these only, in gathering together year by year, and by these means the public will surely begin to see that we work for other reasons than mere pecuniary ones, and that they, in the long run, will be partakers with us in the good that accrues. I cannot refrain from quoting the words of Sir William Jenner, with which I was so much struck when hearing him deliver his address at the opening of the International Medical Congress of 1881. He said in conclusion, "We are here to spread the truths we know, and to learn from others the truths they have to tell. We are here to give our knowledge freely, and to receive from others as freely the knowledge that they can bestow, and in the giving as well as in the receiving we shall increase our own store. We are here to thrash out the corn of truth from the wordy chaff in which it is too often enveloped. We are here, by our discussions, to elicit the truth from the conflicting statements of what is truth. We are here to meet each other socially; to remove in that way all prejudices, to promote kindly feeling, to renew old friendships, and to lay the foundations of new friendships, and, by personal intercommunion to knit more closely the bonds of that professional brotherhood of which we are so justly proud."

Mr. H. P. FERNALD proposed, and Mr. HAYMAN seconded a vote of thanks to the President for his address, which was at once carried.

The PRESIDENT then called upon Dr. Waite to exhibit his specimens of Pre-historic Dentistry.*

* A very good representation of these interesting specimens, for which we are indebted to the liberality of the Western Counties Branch, will be found at p. 512.

Dr. WAITE said the specimens he had to show them were interesting on account of their undoubted antiquity. Those who read the *Independent Practitioner*, would have seen in the January number an article by Dr. Van Marter, of Rome, in which he described two specimens of artificial teeth which he had found in the Museum of Corneto-Tarquinius near Civita Vecchia, and of which by permission of the authorities he had some carefully executed drawings made, which were reproduced in the above-named periodical. Soon after this paper appeared, he (Dr. Waite) received a letter from the editor of the *Independent Practitioner*, stating that he had heard from a friend in Philadelphia, that there were some specimens of a similar kind in the Museum at Liverpool. Dr. Waite then communicated with the Curator of the Brown Museum, and found that there were some specimens of the kind there, and he wrote a short description of them which appeared in the April number of the *Independent Practitioner*. When he decided to pay a visit this year to the United States, he thought it would be interesting if he could get the specimens for exhibition, and after some trouble he did obtain the loan of them, and had shown them before two of the New York Dental Societies, and he now brought them to Hereford that the members of the Western Branch might also have an opportunity of seeing them. The Curator of the Brown Museum informed him that these specimens had originally belonged to the Mayer collection, and attached to them was a paper in Mr. Mayer's handwriting, stating that he had obtained them in 1857, and that they were supposed to have been found in an Etruscan grave. Mr. Mayer was a jeweller of Liverpool, who had devoted all his leisure to the formation of a valuable collection of antiquities. Those who had any antiquarian knowledge would know that no written records existed of the period to which these specimens belonged. All that was known of these people was derived from the relics which had been found at various times. The specimens showed that even at that early period (about 600 B.C.), they had a very good idea of restoring the loss of teeth, and that they adopted a plan similar in general outline to that now practised. He would add that as it was the custom amongst these people to cremate their dead, only princes and nobles being embalmed and buried, it would be very difficult to obtain any number of specimens such as he then exhibited, even though the practice might have been a common one.

The PRESIDENT, after thanking Dr. Waite for the trouble he had taken, remarked that they showed that absorption of the alveolar processes was not a new disease, otherwise the frame now shown could not have been worn.

Mr. HUNT observed that the date assigned to these specimens would make them about contemporary with Hippocrates, but there was no mention of anything of the kind in his works.

After some remarks from Mr. BROWNE-MASON and Mr. FERNALD, Mr. SPENCE BATE said he thought it would be a good thing, as they had some funds in hand, to ask Dr. Waite to have some drawings made which could be sent to the Journal. The plates published in the *Independent Practitioner* were very well done, but that journal did not circulate largely in this country.

Mr. BROWNE-MASON seconded the proposition, which was at once agreed to.

Mr. SPENCE BATE then read the paper on "Excision v. Extraction of Stumps," which will be found at page 552 of this number.

The PRESIDENT having invited discussion,

Mr. BALKWILL said he had found in his own practice that the plan Mr. Bate had recommended was specially important in regard to the lower front teeth. These should always be retained as long as possible. He had met with several cases in which the extraction of these teeth before middle life had made the fitting of false teeth almost impossible on account of the amount of absorption of the alveolar process which had taken place.

Mr. HUNT said his experience was that roots treated in the manner described by Mr. Bate acted as a most serviceable buttress or foundation for a plate to rest upon, that, as a rule, the alveolar process remained full and of normal size, and that patients could bite as hard again on such a foundation as they could on the ordinary gum unsupported by such roots. It was astonishing how many years roots, if carefully treated in the first instance, would remain, to the great benefit of the patient's power of mastication. He fully endorsed what Mr. Bate had said on this subject. He thought this was a department of conservative dental surgery which deserved more attention than it generally appeared to receive.

Mr. COOKE PARSON said he quite agreed with the views expressed in the paper. He should be glad to know whether Mr. Bate was in the habit of capping the whole surface of the root, or whether he merely filled the canals and left the rest exposed.

Mr. H. MALLETT said he thought there could scarcely be two opinions as to the benefit to be derived from following the course adopted by Mr. Bate. It was really distressing to see the patients who sometimes consulted him on account of the trouble and disfigurement they suffered owing to wholesale extraction of teeth and consequent absorption of the alveolar processes. He found Jacob's gutta percha a very useful filling in many of the cases referred to by Mr. Bate; he had seen cases in which this had done duty for fourteen or fifteen years, where a plate had been worn over it. Of course gold fillings might be better, but then they knew that in many cases they could not do exactly what was best, for the reason that the patient would not give a *quid pro quo*.

Mr. BATE said that if teeth were to be preserved they should be treated in the best way possible, and the practitioner should carry out the work to the best of his ability, looking upon an immediate return in the way of fees as a secondary matter. No doubt patients would occasionally fancy that the dentist was doing work there was no occasion to do, but if they could bring such people to experience the benefit of proper treatment, and to feel that the work was properly done, they would soon get them to pay a fair sum for the skill and time expended upon it. If a patient would not allow the work to be done it could not be helped, but he thought they ought not to omit doing their duty simply because they did not always get paid for it. His practice was to bevel the edges of the stump, and to have a good layer of gold on the surface. He thought Jacob's gutta percha was a first-class filling for preserving the teeth, and it would occasionally remain in for a long time, but he generally used it only as a temporary filling. When a tooth had been excised, the pulp removed, and the canals filled at once, he had never known abscess to occur.

Mr. HAYMAN said when artificial teeth were placed over stumps, he noticed that patients often came back with the plate broken.

Mr. SPENCE BATE replied that his own experience was that plates fitted over stumps did not break oftener than others.

Mr. FERNALD said he had tried the plan of retaining stumps, but had met with a good many failures from the occurrence of periostitis and abscess. He could not help thinking that men were occasionally led to preach at such meetings more than they

practised at home. At all events after listening to the able practitioners who had spoken, he felt bound to confess that he had not been as successful in his attempts to preserve stumps as he could wish to be.

Mr. SPENCE BATE replied that he had only advocated the retention of healthy stumps, and that if abscess did supervene, it could in many cases be successfully treated.

Dr. WAITE said it seemed to him most desirable to save all the teeth and stumps they could before introducing artificial substitutes. But for the most part where they had to supply artificial teeth, the crowns of many of the natural teeth, probably one half of them, had decayed and broken away and the pulp had been dead for some considerable time. Now he drew a considerable distinction between a tooth the pulp of which had been destroyed artificially, and one the pulp of which had died a natural death. He thought this was probably the explanation of the difference of opinion they had just heard. When they destroyed a pulp artificially and removed it within a few days, there was every probability in a healthy person of successful treatment and the retention of the root for a long time. But in cases where the pulp had been dead a long time the chances of successful treatment were greatly diminished, and if abscess did not already exist, it was very likely to follow from the mere preliminary treatment and the slight irritation which was set up by the operations necessary for cleaning out the root. Mr. Spence Bate had said that he only advocated the retention of healthy roots, but if the unhealthy roots were removed and the healthy retained, this gave rise to another difficulty, namely, the inequality of the surface left for the plate to rest upon.

Mr. SPENCE BATE said they must of course satisfy themselves that an abscess did not already exist and that the root was not necrosed. If abscess supervened under the circumstances referred to by Dr. Waite, he should be disposed to attribute it to some portion of decomposing pulp left far up in the roots. Of course everyone met with cases of difficulty, and they were obliged to consider how these could best be met, but he thought the general rule should be that which he had stated, viz., to save roots wherever possible.

The SECRETARY then read the following short communication from Mr. Helyar, of Bristol, on "Powdered Charcoal as a Root Filling":—

In these days of "save all teeth," with a minimum amount of labour and a maximum amount of success, the value of charcoal as a means to this end is worth attention. It is antiseptic, absorbent, indestructible, easy of introduction, and also, should necessity require, of removal. In cases of putrescent pulp or of fistulous alveolar abscess, the pulp may be removed, the canals cleaned and the charcoal inserted up to and including a portion of the pulp cavity, and on this an oxychloride filling may be inserted at the same sitting with greater certainty of a satisfactory result than with any other substance at present in use, at least, in my experience.

Mr. HUNT then showed and described Coxeter & Nehmer's electro-motor burring engine, and made some remarks on other inventions of the same character.

A discussion followed, in which Messrs. Browne-Mason, Caleb Williams, Mallet, Fernald, and the President took part. The members then adjourned for luncheon.

In the afternoon Mr. F. H. BALKWILL of Plymouth, gave a practical demonstration on "Adhesive gold fillings, introduced with smooth-pointed instruments," and Mr. Browne-Mason gave a demonstration of the Herbst Method of filling, and exhibited a number of specimens of gold and tin fillings, which had been sawn in half and submitted to various other tests.

In the evening the members dined together at the "Green Dragon" Hotel, Mr. McAdam taking the chair. Amongst the visitors present were the Mayor of Hereford (Mr. J. H. Morley), Drs. Bull and Smith, and Messrs. Turner and Thomason, Physicians and Surgeons respectively to the Hereford Infirmary.

"Prosperity to the City of Hereford" was proposed by Mr. Browne-Mason, and responded to by the Mayor. Mr. Spence Bate next proposed "the Medical Profession," which was acknowledged by Dr. Bull and Mr. Turner, Mr. R. Rogers then proposed the health of the President, which was received with enthusiasm. The last toast was "The British Dental Association and its Branches," proposed by Dr. Bull, and responded to by Mr. Parkinson. The proceedings were varied by some very good songs and glees.

WESTERN COUNTIES BRANCH.

Specimens of Pre-historic Dentistry, exhibited by Dr. Waite, at the Meeting of the Western Counties' Branch, at Hereford, August 24th, 1885.

Fig. I.



Fig. II.

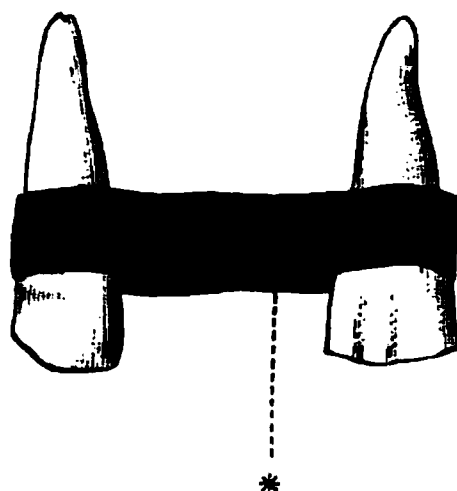


Fig. I.—Natural Teeth Missing.

Fig. II.—Artificial Teeth Missing.

* Gold Rivets, by which the Artificial Crowns are attached.

The Annual General Meeting.

THE Fifth Annual General Meeting of the Association took place at Cambridge on Thursday, Friday, and Saturday, the 27th, 28th, and 29th ult. Profiting by the experience gained in previous meetings, and thanks to the untiring labours of the Hon. Local Secretaries, Dr. George Cunningham and Mr. W. A. Rhodes, it may be confidently said that the arrangements on this occasion left nothing to be desired. The only feature which we hope to see improved on future occasions was the weather, and this, though not sufficiently bad to mar the success of the meeting, was certainly not so genial as might have been expected at the time of year.

Although great pains were taken to obtain an accurate register of the members attending, it is certain that some of the late arrivals escaped registration. The attendance, about a hundred and thirty in all, was slightly in excess of last year, and included the following :—

Andrew, J. J., Belfast.
Ashworth, Henry, Manchester.

Balkwill, F. H., Plymouth.
Bate, C. Spence, Plymouth.
Beavis, Geo., Newport, Mon.
Bennett, Storer, London.
Biggs, J. A., Glasgow.
Blandy, Henry, Nottingham.
Brand, E. E., Exeter.
Bridgman, J. B., Norwich.
Broughton, W., Eccles.
Brownlie, J. R., Glasgow.

Cameron, D. R., Glasgow.
Cameron, Jas., Glasgow.
Campbell, Walter, Dundee.
Canton, Fred., London.
Capon, R. M., Liverpool.
Cocker, A., Halifax.
Cole, J. Fenn, Ipswich.
Coles, J. Oakley, London.
Cormack, A., Edinburgh.
Cormack, E. A., Edinburgh.
Cormack, D., London.
Coxon, S. A., Wisbech.
Crapper, J. S., Hanley.
Crichton, J. N., Perth.
Cronin, A., London.
Cunningham, C. M., Cambridge.
Cunningham, Geo., Cambridge.

Drabble, R. C. H., Sheffield.

Fernald, H. P., Cheltenham.
Fisher, W. M., Dundee.
Fothergill, J. A., Darlington

Gaddes, Thos., London.
Geekie, Wm., Oxford.
Gregory, E., Cheltenham.

Halliday, H., London.
Harcourt, B. W., Norwich.
Harding, W. E., Shrewsbury.
Harrison, Frank, Sheffield.
Harrison, R., London.
Hayman, C. A., Bristol.
Headridge, Wm., Manchester.
Helyar, Wm., Bristol.
Hepburn, David, London.
Hepburn, D. S., Nottingham.
Hilder, E. E., Blackburn.
Holford, J. J., London.
Holland, J., London.
Hughes, Morgan, Croydon.
Hunt, W. A., Yeovil.
Hutchinson, S. J., London.
Huxley, F. E., Birmingham.

Jones, Alfred, Cambridge.
Jones, Alfred, jun., Cambridge.
Jones, W. G., London.

Keys, E. L., Plymouth.
 Kekwick, D. F., Carlisle.
 King, R. F. H., Newark.
 Kluht, G. H., London.

Lawrence, H. A., Ealing.
 Lennox, R. P., Cambridge.
 Littleboy, A. L., Norwich.
 Lodge, G. H., Rotherham.

McAdam, G. C., Hereford.
 McGregor, Malcolm, Edinburgh.
 Mackenzie, F. V., London.
 Macleod, W. B., Edinburgh.
 McStay, J., Belfast.
 Mahonie, Thomas, Sheffield.
 Matheson, L., Manchester.
 Moon, Henry, London.
 Mountford, A. H., Bournemouth.

O'Duffy, J., Dublin.

Parkinson, James, London.
 Parson, T. Cooke, Clifton.
 Payling, R., Peterborough.
 Pearman, E. B., Torquay.
 Pedley, F. N., London.
 Pike, J. L., Sheffield.
 Prager, Alfred, London.

Reid, Robert, Edinburgh.
 Renshaw, J., Rochdale.
 Rhodes, W. A., Cambridge.
 Richards, F. W., Birmingham.
 Robbins, C., London.
 Rogers, R., Cheltenham.

Sanders, J. J. H., Barnstaple.
 Saunders, Sir Edwin, London.
 Sewill, Henry, London.
 Sims, Charles, Birmingham.

Smale, H. C., Manchester.
 Smale, Morton, London.
 Smith, Dr. J., Edinburgh.
 Stack, R. T., Dublin.
 Storey, J. C., Hull.
 Sutherland, B., Glasgow.

Thomas, H. J., Swansea.
 Tindall, C., Ipswich.
 Tomes, John, London.
 Tracy, N., Ipswich.
 Turner, J. S., London.

Underwood, A. S., London.

Vanderpant, F. J., Kingston-on-Thames.
 Verrier, A. B., Weymouth.
 Vice, W. A., Leicester.

Waite, W. H., Liverpool.
 Walker, Joseph, London.
 Wall, Charles, Dublin.
 Wallis, C. J. B., London.
 Watson, D., London.
 Wells, John, Berwick-on-Tweed.
 West, Charles, London.
 Westlake, B., Windsor.
 White, G. W., Newport, Mon.
 White, T. Charters, London.
 White, Richard, Norwich.
 White, R. W., Norwich.
 Whyte, A. C., Glasgow.
 Wolfenden, A. B., Halifax.
 Woodhouse, R. H., London.
 Wormald, D. A., Bury, Lanc.
 Wormald, Sidney, Stockport.

Young, J. C., Warrington.
 Youngman, F., Torquay.

Meeting of the Representative Board.

THE Representative Board met in the Committee room of the Union Society at 9 a.m. Mr. John Tomes, F.R.S., occupied the chair, and nearly all the members of the Board were present, viz., Sir Edwin Saunders, and Messrs. Canton, Oakley Coles, Gaddes, Hutchinson, Parkinson, Sewill, Turner, and Walker, of London; and Messrs. Brownlie (Glasgow), Blandy (Nottingham), Campbell.

(Dundee), Fenn Cole (Ipswich), O'Duffy (Dublin), Huxley (Birmingham), Mahonie (Sheffield), Macleod (Edinburgh), Cooke Parson (Clifton), Rhodes (Cambridge), R. Rogers (Cheltenham), Sims (Birmingham), D. Smith (Edinburgh), Waite (Liverpool), R. White (Norwich), Wentworth White (Norwich), and Wormald (Stockport).

The minutes of the last meeting having been read and confirmed, Mr. HUTCHINSON proposed that it be suggested to the General Meeting, that the Annual Meeting of 1886 be held one week earlier in August, viz., on the 19th, 20th, and 21st. Mr. Oakley Coles seconded the proposition, which gave rise to a considerable amount of discussion, but was finally agreed to.

Mr. OAKLEY COLES proposed that "in the opinion of the Board, it is desirable that once in five years the Annual Meeting of the Association be held in London or its neighbourhood." This was seconded by Mr. S. J. Hutchinson and after much discussion was carried.

The PRESIDENT (Mr. J. Tomes) called attention to the retiring members of the Representative Board, and remarked that though these gentlemen might be willing to serve again, he would remind them that the time had come when the re-election of retiring members should be the exception not the rule, or the Representative Board would fail to be representative. Dr. Walker and one or two other retiring members spoke in support of the President's remarks.

It was then proposed by Mr. Oakley Coles, seconded by Mr. Hutchinson, and carried by acclamation, that it be recommended that the next Annual General Meeting be held in London, and that Sir Edwin Saunders be the president-elect.

Mr. J. S. TURNER then proposed the re-election of Mr. J. Tomes as President of the Representative Board, pointing out the invaluable assistance given by him to the Association ; this was at once carried by acclamation.

A vote of thanks to Mr. Tomes was then proposed by Mr. Turner, seconded by Mr. Parkinson and carried with applause.

Mr. TOMES having replied, the following gentlemen were ballotted for and elected members of the Association, viz., Messrs. H. C. Smale, L.D.S.Eng., of Manchester ; W. England, L.D.S.Eng., Wimpole street, London ; Morgan Hughes, L.D.S.Eng., Croydon ; and Alfred Prager, L.D.S.I., Portman street, Portman square.

The Business Meeting.

The General Meeting of members for the transaction of business was held in the Debating Hall of the Union Society. The President, Dr. John Smith, took the chair punctually at half-past ten, and at once called upon the Treasurer for his report.

Mr. JAMES PARKINSON said the balance standing to the credit of the Association at the bank amounted at that time to about £620. He was sorry to have to add to this statement another of a far less satisfactory character, viz., that there were about a hundred and twenty subscriptions for the current year unpaid, and twenty which had not been paid for two years. He would recommend those who owed for two years to pay up at once if they wished to remain members of the Association.

Mr. J. S. TURNER explained that the brevity of the Treasurer's report was due to the fact that it was not usual to submit a detailed account of the state of the finances of the Association before the Annual General Meeting. The rules of the Association provided that every year at a certain date the accounts should be audited by three auditors, and the details published in the Journal of the Association; and this had always been done. It was far more convenient that the accounts should be made up and balanced at the end of the year than just previous to the Annual Meeting which was not necessarily held on any fixed date.

The report having been adopted, the PRESIDENT called upon the Hon. Secretary to read the report of the Executive Committee.

GENTLEMEN,—Your Committee have the pleasure of placing before you their annual report, which shows progress again in every respect.

Soon after the last annual meeting, another Branch was formed, and called the Central Counties, Mr. Chas. Sims being the first President, and your Committee feel that the thanks of the Association are especially due to this gentleman for the exertions he has made to obtain the formation of this Branch, which makes our sixth.

During the year, the Executive have found it necessary to twice prosecute a man named Wm. Robertson, of Edinburgh, for persistently infringing the Dentists Act; on September 25th, 1884, he was convicted and fined £5, and on January 9th, 1885, £20, the

full penalty being pressed for the second time. On March 6th, Alexander Ross French, of Dundee, was also prosecuted for infringing the Dentists Act, and was convicted and fined £10. In addition to these prosecutions, three other persons, who were acting contrary to the Dentists Act, were induced to discontinue doing so without legal proceedings being taken ; some other cases are now under the consideration of the Board.

The number of members reported last year was 536, this year the number is 562, showing an increase of 26, but if we take into consideration the fact that no less than 18 were removed at the end of last year for non-payment of their subscriptions, it really shows an increase of new members of about 50, clearly showing that in this respect the Association is in a thoroughly healthy condition. Three members have died during the year, and one has resigned.

At the last annual meeting your Committee had to bring before you the name of Mr. H. J. Partridge for formal expulsion from the membership of the Association, since which it was found necessary to bring his advertisements under the notice of the Royal College of Surgeons of Ireland (of which he was a Licentiate in Dental Surgery), with the result that they have seen fit to cancel his diploma and requested him to return the same.

Your Executive would call attention to the good work done by the Branches of the Association, to the excellent meetings they have held, and more especially to the harmonious way in which they have endeavoured to work with the Representative Board.

The Committee has been in communication with the General Medical Council on various subjects, and, among others, have induced the Council to remove the name of Charles Rudolph Werner, from the Dentists' Register, he having been convicted of fraud. Communication has also again taken place with the authorities concerning the formation of the Jury Lists.

The Transactions have been issued in a separate volume as before, and the Journal continues to improve and become more and more important.

Your Committee feel that the Benevolent Fund does not receive the support that it might, though with the small means at its disposal it has accomplished much, but full particulars of this Fund will be laid before you in due course.

Messrs. Rait and Kearton, the Auditors, have been re-appointed, and Mr. Pink remains our active Secretary.

The names of the retiring members of the Board will be placed before you, and other names suggested for election in their place.

The ordinary proceedings of the Association being so fully recorded in the Journal, there is no need to detain you longer with this report, more especially as we have a long programme to work through.

The report was adopted.

The PRESIDENT said the next business was to decide upon the place of meeting for 1886. The matter had been considered by the Representative Board that morning, and they had, after careful deliberation, decided to recommend that the next meeting should take place in London. One of the reasons which had influenced the Board in making this recommendation was that they suggested that the next President of the Association should be Sir Edwin Saunders. He thought it best to introduce the two items of business together as the one hinged on the other.

Dr. W. H. WAITE said he had very great pleasure in proposing that the meeting should endorse the recommendation of the Representative Board that the next meeting should be held in London, and he felt sure that all had heard with great pleasure the suggestion that Sir Edwin Saunders should be the next President. He begged to propose that these recommendations be agreed to.

Mr. SPENCE BATE said he had great pleasure in seconding the motion. Until he heard who was to be the President-elect he felt strongly disposed to oppose the suggested place of meeting; but under the circumstances he thought they could not do better than follow the course recommended by the Board. At the same time he thought that as a general rule the Association would do well to keep to the provinces. A young society, as theirs was, was lost in London, and even in such large towns as Manchester, Liverpool, and Birmingham, but in smaller towns they would make more show and would attract more new members, and would more quickly grow into a large society. He had given the reasons why he had at first felt some doubts on the subject, but he hoped the resolution would be carried unanimously.

The President then put the motion and it was at once carried.

The PRESIDENT said the next business was to decide upon the date of the next meeting. Some discussion on this question also had taken place at the meeting of the Board, a proposal having been brought forward to alter the usual date of the meeting. He would, however, leave it to the proposer and seconder to explain the proposition in detail.

Mr. S. J. HUTCHINSON said he had not brought this matter forward simply to suit his own convenience, but because, in talking with friends during the last two or three months, he had gathered that it would be a decided convenience to a great many members if the meeting was held earlier in the month of August. He proposed, therefore that it should be held a week earlier than usual, viz., on August 19th, 20th, and 21st. His proposal was not brought forward to suit the convenience of the London members only, he believed it would also suit the provincial members, and he brought it before the general body of members present in order to get a definite expression of opinion from them as to what time would suit them best for holding the meeting. He would add that he did not want to bind the Association to hold the meeting earlier every year, he made the proposition only with reference to 1886. If it should then prove more convenient to the majority of members than the time hitherto chosen, it might afford some data for future years.

Dr. GEO. CUNNINGHAM said he would second Mr. Hutchinson's motion, and perhaps he could give some practical information as to the results of the present date of the meeting. He should say from the replies he had received from members stating their reasons for not being able to come to Cambridge, that holding the meeting a week earlier would be an advantage. But the success of a meeting of that kind depended not only upon the attendance of members, but also on the attendance of the distinguished people who were invited as guests, and local men of importance who were glad of an opportunity of doing honour to such an Association as theirs, and he could assure the meeting that although the success of that meeting would, he hoped, be great, it would not be so great as it would have been had the meeting been held earlier in the month. The local secretaries had been in correspondence with many distinguished members of the University, who would have been pleased to have attended the meeting and were anxious to do so, had it not come at a time when everybody was away on their well-earned holiday. He thought that these considerations might, perhaps, give a certain amount of weight to Mr. Hutchinson's proposition, which he had much pleasure in seconding.

Mr. OAKLEY COLES said he was reluctant to express his own opinion on the subject; he thought it was a matter which concerned the convenience of the members generally, and the sense

of the meeting would be best ascertained by a vote. With regard to the points raised by Dr. Cunningham, there could be no doubt that at that season a large number of men who would be willing to take part in this meeting would be absent, but he was not sure that this would be lessened by having the meeting a week earlier, and they must not be disappointed if after the alteration they still failed to secure the attendance of many of the principal inhabitants of the towns in which they might meet. He thought, however, that for the majority of the London members, and he believed also for a large number of those in the provinces, the earlier date would be more convenient, and he therefore had much pleasure in supporting the resolution.

Mr. SPENCE BATE asked whether there was any rule that the Association should meet in August, to which the Secretary replied in the negative.

Mr. WALTER CAMPBELL moved as an amendment that the next meeting should be held in the first week in August. That would be a very convenient time to himself personally, and he thought it would also suit most of his professional friends.

Mr. JAS. PARKINSON seconded the amendment. He thought that for London members the first week in August would be the preferable time, if any alteration were made.

Mr. GADDES said he thought there could be no doubt that the London men generally would prefer the first week in August to the last week but one. Most London practitioners went for their holidays about the middle of August, and if the meeting was held during the first week in August, they would be able to attend it before they left town.

Mr. CANTON said that if it was the wish of the members generally that the next Annual Meeting should be held in the first week in August, he should be sorry to enter any protest against it, but he should like to point out that there was a very large amount of work to be done in preparing for an important meeting of that kind, and if the meeting was held thus early, this work would have to be done during a time when those who had to do it were very busily engaged in practice. The time suggested would, therefore, he thought, be very inconvenient to those who had to make the arrangements. Certainly it would be so to himself.

Mr. GORDON JONES (London), said there could be no doubt that the first week in August would be the most convenient time for the majority of the London practitioners, but as Mr. Canton

had said that this time would be very inconvenient to himself and others who had to make the necessary arrangements, and he thought it was their duty as far as possible to consider the wishes of their worthy Secretary, he would suggest that a compromise might be made, and the meeting fixed for the second week in August, if that was in harmony with the views of the majority.

Mr. J. S. TURNER said that in deciding upon the particular part of the month on which to hold the meeting, there was another matter which ought to be kept in mind, and that was the date of publication of the Journal. This was published on the 15th of the month, and if the meeting were held in the third week in August it would be possible to publish notices of all the arrangements, which could not usually be completed until a short time before the meeting. But if the meeting was held a few days before the publication of the Journal, the notices must be published a month earlier, and it would be very difficult at that time to get all the information which it was necessary to obtain before these could be published. The date of the meeting should, of course, be fixed so as to suit the convenience of the members generally, but he feared it would be impossible to suit all, since what suited those in one part of the country would not suit those in another. He hoped that many would make the pleasure of their holiday subservient to the duty of attending the meeting. Even with regard to the London members, the date which would be convenient for them one year might not suit them the next, since a good deal depended on the exigencies of parliamentary business and other causes. For these reasons he should have great hesitation in fixing upon the early part of August for the date of the meeting. But, after all, the personal convenience of individuals must not be considered; what it was desirable to ascertain, if possible, was what would be most convenient for members generally.

Mr. R. F. H. KING suggested that it should be left to the Representative Board to fix the date of the meeting at such a time as they might think best after consideration of all the circumstances.

Mr. CANTON said it was expressly stated in the Bye-laws that the date of the Annual General Meeting was to be decided by the vote of the members generally.

Mr. CAMPBELL said that after what Mr. Canton had said he would withdraw his amendment.

Mr. CANTON replied that he should be sorry that the amendment should be withdrawn on his account. The general con-

venience of the members must be the first consideration, and whatever inconvenience might be entailed upon individuals must be got over in the best way possible.

Mr. HUTCHINSON said he thought there were three points to be noticed which had been referred to in the course of the discussion. The first was the protest of the Secretary that there was a great deal of work to be done previous to the meeting, and holding the meeting during the first week in August would necessitate the carrying out of this work during a very busy time. Secondly, he would point out that the Journal would be published some four or five days before the date which he proposed for the meeting—viz., August 19th, 20th, and 21st; and thirdly, he would remind them that, as Mr. Canton had pointed out, they were compelled by the Bye-laws to settle at that meeting where and when the next annual meeting should be held. As to what had been said about the first week in August being the most convenient for London members, his experience was that practice did not at all slacken till near the middle of August, and he thought the majority of London members would agree with him in considering the time he had named as more convenient. He hoped it would be found that it would be equally convenient to the provincial members.

The resolution that the next Annual General Meeting be held on August 19th, 20th, and 21st, 1886, was then put to the meeting by the President and carried.

Mr. SPENCE BATE suggested that it would be an advantage, if the place of meeting could be determined upon two years in advance; this would give more time for preparation. This plan had been adopted with advantage by some of the older associations.

The PRESIDENT said the next business was the election of members of the Representative Board, in place of those whose time of office had expired. The retiring members were Messrs. A. J. Woodhouse, Thos. Underwood, W. H. Woodhouse, G. A. Ibbetson, and Dr. Walker, amongst the London members; and Messrs. Brownlie, Campbell, Huxley, Longford, and Manton, from among the provincial members. In addition to these vacancies another was caused by the resignation of Mr. Oakley Coles.

The usual forms having been carried out, the President announced that the following gentlemen had been elected:—Messrs. A. J. Woodhouse, Thos. Underwood, Storer Bennett, Claude Rogers, Morton Smale, and Charters White, for London; and for the country, Messrs. J. R. Brownlie (Glasgow), Geo. Brunton

(Leeds), R. H. F. King (Newark), Dr. Theodore Stack (Dublin), and Dr. W. H. Williamson (Aberdeen).

The PRESIDENT added that whilst he felt sure that the previously existing Board had done all that it possibly could for the welfare of the Association, he was glad that these new members had been elected. It was a wholesome thing that new blood should from time to time be introduced into the directorate of an Association such as theirs. It was necessary for a time that the Board should form a sort of Standing Committee, but it was now important that the working of the Association should be better understood by the mass of its members, and that they should be gradually brought to take an active part in the transaction of its business. He had next to propose the re-election of their worthy Treasurer, Mr. Jas. Parkinson.

This having been at once carried, the President called upon the Hon. Sec. of the Benevolent Fund for his report.

Mr. OAKLEY COLES said he would only state very briefly that the work of the Fund had been actively carried on during the past year. There had been an increase of forty in the number of subscribers, and some small additional donations had also been received, but the claims upon the Fund had also considerably increased. Full details would be given at the Annual Meeting of subscribers which would be held next morning, and which he hoped they would all make a point of attending. He was glad of the opportunity of speaking there chiefly that the name of the Fund might appear on the minutes of the Association, so that all members might see that it was part of the work of the Association, although up to the present time not a single member had received any benefit from the fund which it had provided for the needy.

Mr. CHARTERS WHITE moved that a vote of thanks, and of confidence, be given to the retiring Board, and also a vote of thanks to the President for his labours on their behalf. They had heard a very satisfactory report from the Secretary of the progress of the Association, and this was entirely due to the good management of the Executive.

The vote was carried by acclamation.

Dr. WAITE said he felt sure that all would admit that they owed a very deep debt of gratitude to their excellent Secretary, and that they ought not to allow such an occasion to pass without recording their appreciation of his valuable services and the exceedingly genial and courteous way in which these services were

rendered. He had had some little experience of the multiplicity of duties that devolved upon an honorary secretary, and he could therefore the more confidently assure them that Mr. Canton was deserving of their hearty thanks.

The motion was seconded by Sir Edwin Saunders and carried with much applause.

The minutes having been read by the Hon. Sec., were confirmed, and the President declared the business concluded.

Visitors having been admitted, the President proceeded to deliver his valedictory address.

One of the privileges of the chair in such associations as that which I have at this time the honour of addressing, is the opportunity afforded its occupant, at the close and the commencement of his official career, of offering a few words to those who have paid him the compliment of placing him in that esteemed and dignified position. Of this privilege I have now to avail myself, and on relinquishing the presidential capacity to which you so kindly elevated me a year ago, and which for the last twelve months I have been most proud to occupy, I would submit for your acceptance a very few valedictory, and I fear I must say, somewhat discursive observations.

The Association represented here to-day partakes, I need scarcely say, to a greater extent of an administrative and governmental than it does of a disquisitionary or scientific nature. But while its executive element, in promoting and consolidating the interests of the dental body corporate, may be considered as the major function of the Association, the communications, the illustrations, and the demonstrations presented to the members attending this meeting, afford abundant evidence of the aid, encouragement and impetus it also gives to dental science, to the interchange of information and opinion, and to the promotion of social intercourse among those belonging to the numerous body of dental practitioners upon its roll.

During my term of office, the Branch Meetings of this large and influential society have exemplified the extent and value of its operations—the absolute necessity for its existence, and the excellent and important results it is calculated and has been able to effect. To the advances of scientific work accomplished under its fostering care I shall not now advert. The reports of its Branch Meetings testify to the important steps, or shall I rather call them giant strides, made within the short span of a single

year in this direction, and in the elevation of Dental Surgery as a branch of Medicine. And I may here interpolate in a parenthetical form, that apathetic, dilatory, or over-cautious, as some have been inclined to consider the bearing of the General Medical Council—so far as it goes in regard to certain aspects of dental business—the scrutinising interest, the mature deliberation and the careful attention of that—the highest medical tribunal in the land—manifest that its actions are scrupulously weighed and impartially dealt out; while at its meetings dental surgery is rapidly being recognised on equal terms, and assigned a place upon the self-same platform as that accorded any other one of the higher departments of the healing art.

Turning then from the scientific to the administrative business coming before the Association during the past year, the list of prosecutions which it has entered upon forms no doubt the prominent and most noteworthy feature for consideration. Of these, and of the other incidents occurring then from time to time, let me here but briefly recapitulate a few.

Shortly before I ascended your presidential chair, an alleged attempted case of personation—that is, one individual fraudulently implying to the public that he was another practitioner—had occurred, and was one of those cases in which the General Medical Council was, at its meeting on October 11th of last year, held by some to have been rather lukewarm at interfering. At the meeting of your Representative Board, on November 1st of the same year, the successful—if it can be altogether so denominated—case of Robertson was communicated by Mr. Bowman McLeod, whose disinterested labours in the matter are everywhere well known and appreciated. Some time previously to this the case of Holford had devolved upon our secretary, Mr. Canton, for its prosecution, and was one of those examples testifying to the care and circumspection demanded in the discharge of such troublesome, responsible, and most obnoxious duties. On the 9th of the same month we find Robertson again successfully prosecuted, although again without material result, and on this occasion by the secretary of the Association. On the 6th of March of the following year, 1885, the prosecution of French, of St. Andrews, described as an ex-confectioner of Dundee, was carried out at Cupar, for unwarrantably assuming the titles of dental surgeon, D.S., D.D.S., the prefix of Dr., &c., and practising as such designations imply the right to do. In

April, another, and this time a fruitless prosecution, *Hodgson v. Yates*, for assuming the affix of R.D.S., described as meaning "registered dental surgeon," was dismissed with costs against the pursuer, the accused being found to have been at one time a registered practitioner. In addition to these, the more salient of the legal memorabilia of the current year, there took place at Nottingham, on April 17th, the meeting and dinner of the Midland Branch of the Association, where I had the honour of attending, and at which meeting much interesting and important matter bearing on such cases as have just been noticed, came to be discussed. At this time also, while passing through London, I took the opportunity of directing the attention of some members of the Government to the possible effect which the passing of the 'Poisons Bill,' in its then existing form, might exercise upon the powers and privileges of the dental profession. Lastly, on June 5th, another great and most successful gathering took place at Dundee, upon the occasion of the Scottish Branch holding its third annual meeting there, and where I had the privilege of delivering my valedictory address upon retiring from the presidentship of that important section of the Association. Since that time no event of any greatly interesting or exciting nature has transpired, and it is to be hoped that the firm and definite attitude assumed by the Association in the legal actions of the year may have had a wholesome and deterrent effect, and that those that are now past may constitute the majority of such prosecutions which the Association may ever during its existence be called upon to undertake.

Much, however, as we may congratulate ourselves upon the success of such proceedings, they have cost no little trouble and annoyance, and have shewn the care and delicacy involved in successfully carrying out all matters of the kind.

To the more impetuous, exacting, and impulsive spirits amongst us, they are well calculated to exhibit that the glare and radiance of a new beacon fire just lighted for our guidance, such as the Dentists Act, must not be allowed to blind us to the fact that enthusiasm for progress cannot be permitted to exercise a rough-shod contempt for, or to ignore the calm but stern and impartial demand of facts and circumstances as they exist, not in one but in all their aspects, whether in the interests of the prosecution or the defence; and that much as reform may be needed and desired, it must, here as elsewhere, be always sought

for by paths where the way towards our ends is paved with judgment, leisure, and discretion.

Taking a comprehensive view of the mass of offenders against the Dentists Act, they seem to be divisible into two separate and materially different classes: first, those who are registered and, it may be, specially qualified practitioners, but who conduct themselves in a manner unworthy of their position; and second, those who are not registered, but who engage in practice as if they were duly registered practitioners. And it is in dealing with the latter class—those whose offence consists merely in carrying on practice without any right to that registration which alone entitles them to do so—that, perhaps, the greatest difficulty is experienced. In these cases no range or grade of penalties exists. In the other class, that of registered practitioners guilty of professional indecorums, the punishment, I presume, as in the case of medical practitioners, shades off from suspension or withdrawal of a diploma or erasure from the Register, down to a mere remonstrance or admonition. In the other it is the summary and total ablation and extinction of the culprit which is, in all cases, sought, and is the award. This constitutes a difficulty which, though serious, has occasionally almost a touch of humour in it, since, even after such supposed extermination, the offender may, like the phoenix of old, be found rising from his ashes—possibly in a new, but most likely in a form and shape as defiant and offensive as ever. Prosecution after prosecution may here be advocated and persisted in, but in such miserable cases as these generally are, there exists the danger of this procedure being construed into one of persecution, the risk of such misconstruction being increased by the fact that the part of public prosecutor has to be undertaken by a private individual and a brother in trade. In such cases the ignorance of the real question at issue, and the interest, notwithstanding, taken in them by that great judicial body and court of law—the general public—plays even a more important and decisive part, and one of greater weight in certain ways, than the statements or opinions of the members of that profession more immediately concerned. For we must recollect that in such cases the public is ever inclined to “gently scan our brother man,” and, moreover, is ever inclined also to stamp it as beneath the dignity of the learned professions to descend to fight what it is pleased to term those petty indiscretions, which are alleged to brand the perpetrator

in the public eye much deeper, much sooner, and much more effectually, when he is let alone. And there is no doubt that such a feeling being known to be abroad is, to a greater or less extent, a consideration which acts as an embarrassment and a restraint in a certain measure upon the normal course of justice.

I am not here, however, upholding a policy of non-interference with offenders—I am not dissuading from legal measures or proceedings being instituted against law-breakers. Far from it; I merely question whether the game is worth powder and shot; I am attempting to inculcate that perhaps in certain instances some of these cases, although irritating, are of so insignificant and contemptible a character as to render it questionable whether it might not be more expedient, more dignified, and more efficacious that they should be set at nought. In dealing with the other class of offences, especially with those of a more flagrant character, little hesitation need be felt. Foremost among these, the assumption of false or spurious titles, of pretended qualifications, of misleading and fictitious subterfuges of any kind, constitute the individual simply as an impostor who under covert and convenient seeming, is as dangerous to the general community, as his conduct is nefarious towards the duly constituted practitioners alongside of him. Of infamous conduct in a professional point of view, this is, perhaps, the worst and most momentous form, and one to which no consideration or lenience need be shewn. Apart from such more flagrant cases, however, there are gradations of disreputable or unprofessional conduct more difficult to dispose of. There are questions of unprofessional conduct between the shades of which no exact or definite line has as yet been drawn. To do so is very difficult. Take the case of advertisements. Now you are aware that the committal of any offence which amounts to a misdemeanour, or any conduct of an infamous nature in a professional point of view—certainly a somewhat vague definition—may, according to the 13th section of the Dentists Act be followed by erasure from the Register; that same erasure from the Register again entailing, peremptorily and *ipso facto*, the withdrawal of the diploma by the authority from whom it may have been granted many years before, and perhaps obtained, not only creditably, but with honours and distinction. This enactment, however, seems to be about all that has been provided for such cases, and the severe and serious nature of such a sentence renders its infliction painful and repulsive, and therefore, except in extreme circum-

stances, explains its being always difficult to obtain, either at the hands of the Medical Council or of the Licensing Boards. Such a system of punishment, in fact, has of late been brought under notice as a supremely interesting subject of study, and one not in every case at all likely to be unanimously approved of. Punishments of this kind, indeed, where a second penalty is entailed solely in virtue of, and altogether consequent upon the mere fact of a previous one having been inflicted, are, in the sense of a recent article by the Hon. Justice Stephens, appearing, I think, in the *Nineteenth Century Review*—always undesirable and hampering to the judge, and generally distasteful, as operating with retrospective severity, and tending to punish literally for having deserved well in earlier life.

Let me, however, not wander into abstract or tedious speculations. If I have expatiated upon a subject likely to be a moot and debatable point, it is because it forms the key-note and leading matter of my text, as found in the resumé given of the Association's work last year, while it is at the same time a subject demanding dispassionate consideration, and a full insight into the difficulties with which it is beset. And I merely go thus far towards keeping in mind that whether or not such difficulties are unremovable or insurmountable, still they exist and are to be taken into account. Great differences of opinion on such questions necessarily exist in all such large bodies as the British Dental Association; various estimates are certain to be held of the magnitude and importance of different forms of offending, and various ideas entertained as to the severity and summary and off-hand nature of the punishment which ought to be inflicted. It is as well, however, that our action in such cases should be as little as possible of a vindictive, or high-handed, or headlong tendency, but rather with the disinterested aim and object, as Sir John Lubbock well put it in one of the earlier debates upon the Dentists' Bill, of protecting the public against quacks and quackery, by giving it a complete and easily accessible opportunity of ascertaining for itself whether or not any one assuming to be a trustworthy member of the dental profession is properly qualified; and this, there is no doubt, is already largely supplied in the publication of the Dental Register. And the duty of the dental profession, more especially as it is represented in the British Dental Association, is to assist in maintaining that Register in as pure and reliable a state as possible.

Nor, after all, must we expect too much : for do what we may, and with all forbearance doing our very best in such a cause, either as individuals or as an association, I fear we shall find, in the words of a writer whose works are familiar to you all, that,

—“ In the world, as in the school,
We see how fate may change and shift,
Success be sometimes with the fool,
The race not always with the swift ;
The strong may yield, the good may fall,
The great man be a vulgar clown,
The knave be lifted over all,
The kind cast pitilessly down.”

I shall not detain you much longer with any remarks I have to make. There is only one other matter to which I would allude very briefly, and it is in another direction altogether from the discussion of offences and penalties. It is in reference to the expediency of visitation of the dental examinations in the same manner, or something similar, to what is carried out at the medical examinations. I would even suggest the expediency of an interchange of delegates from the different licensing boards at the various dental examinations, as is now customary at the medical and surgical ones of the Scotch examining bodies. In this manner a uniformity in the examinations—at least on the general subjects—might be more certainly secured. The special subjects might, I think, be safely left to the special circumstances of these examinations, and to the care of the special examiners, chosen as they usually are from the various dental schools. A recommendation to such effect might, if approved of, be forwarded from the Association to the different licensing bodies, so that they in their turn might communicate with the General Medical Council on the matter. Visitors, I am aware, may at present be selected by that body from time to time for both the medical and dental examinations, but I do not know that those of the Dental Boards have ever as yet been honoured by their presence. I do not for a moment suppose that any of the Dental Examining Boards require such supervision, or have any cause to fear it. But it might be of some service as a guarantee to the outside world that these examinations were all up to the mark, and were conducted in a fair, a uniform, and an efficient manner.

And now I have ended. One trying although essential element in a valedictory address, is its suggestiveness of a formal separation and a last farewell. Its terms recall the memory of days

and work and incidents gone by, and are tinged with the sad and sombre colouring of a last look and a parting benediction. Were it possible to infuse into it something of a more genial, auspicious and cheerful character—something more nearly approaching the nature and the spirit of a triumphant general's return and report of himself after an arduous and successful campaign—I should feel in a happier frame of mind than I do at the present time. Unfortunately, this is incompatible with the nature of things and cannot be. The occasion must be to me the close and not the advent of a day of honour and high place. That closing day, however, has yet been to me a very pleasant one ; one, too, which has not been wanting in propitious and eventful episodes, in stirring and momentous records, a day whose dawn in the far north has only given a fair promise of its glowing sundown in the south. Its morning mists rose amid the gray gables of Edinburgh, and its evening shadows fall most befittingly in the classic realms of Cambridge. What more need I say? unless indeed I extend the metaphor to my worthy successor in the chair and add :—

“ That sun hath made a golden set,
And by the bright track of his fiery car
Gives token of a goodly day to-morrow.”

Mr. JOHN TOMES, F.R.S., said : In proposing a special vote of thanks to our retiring President, Dr. Smith, you will thank him, I know, for having been our President, for in doing so he has conferred honour and distinction on the society over which he has presided. For we know, and the world at large may know—at all events such portion of the world as is interested in our subject—that he is a gentleman, and an accomplished scholar, a man worthy of leading us, whose example may be followed in all matters relating to professional conduct—a very serious question indeed that same question of professional conduct—and we shall all do well to study what Dr. Smith's professional conduct has been, for we may follow it with the certainty that we are doing right and ennobling ourselves in so doing. I will not detain you longer as time is passing on, but I will ask you to give a hearty vote of thanks and wish long life and happiness to Dr. Smith, who has to-day made his adieu as President, but who, I hope, we shall long see among us.

Sir EDWIN SAUNDERS said : It affords me very great pleasure to second the vote of thanks which Mr. Tomes has so happily

worded. It is always an advantage to an Association like this to have a man of recognised ability and of recognised honour at its head, and that that man should have attained, as Dr. Smith has done, to distinctions which are not commonly shared by the department with which we are associated. All who had the good fortune to attend the meeting at Edinburgh last year must have retained very pleasant memories of that occasion, of the cordial welcome, of the noble reception, of the distinguished position which the profession was enabled to hold; how everything worth seeing in that beautiful city was thrown open to us, not as it would have been to any of us individually, but as an Association; and therefore I look upon that meeting of our Association in Edinburgh, as being the most important meeting by far that we have yet had, and as marking an era in the history of our Association. We were led to expect from the admirable, interesting, scholarly, and instructive address that our President gave us on his installation, that he would give a high tone to the Association throughout his year of office, and that he would deliver himself of some sound advice in his valedictory address, and in this, I am sure we have not been disappointed. I heartily second the vote of thanks which has been proposed by Mr. Tomes.

The vote of thanks was accorded with great applause.

The PRESIDENT: I have to thank you most cordially for the kind manner in which the speakers have expressed themselves with regard to myself, and assure you I have had a great deal of pleasure in occupying the chair, which I now vacate in favour of my friend the President Elect.

The President Elect (Mr. R. White, of Norwich), then took the Chair and delivered the following inaugural address:

GENTLEMEN,—As President of the British Dental Association for the ensuing year, I ought, perhaps, to have but one feeling, that of pride, that you should have deemed me worthy of so great an honour, but when I reflect upon the talent of my distinguished predecessors, men eminently qualified for so exalted a position, I am compelled to claim your indulgence for any errors I may commit, and to express a hope that you will classify them as errors of the head and not of the heart.

At the Inaugural Meeting of the Eastern Counties' Association, in the address from the Chair, I essayed an historical sketch of the advance of the dental profession during the past fifty years, and as the origin, aim, and consolidation of the British Dental Asso-

ciation have been fully expatiated upon by the past occupants of this chair, it behoves me on this occasion to offer a few remarks on the prospective possibilities, rather than the retrospective actualities of our profession.

The prospect may be divided into educational, social, political, and scientific. In no place could the educational question be more thoroughly and impartially ventilated than in this centre of classic learning, which has in recent years shown how much may be effected by liberal reforms to meet the requirements of the age. The authorities of the University of Cambridge may justly feel proud of their medical school, which, although of comparatively recent date in its present extended form, annually increases in prosperity and usefulness, and takes a leading part in all questions relating to medical education.

Gentlemen, we live in an age of progress! to be stationary is to degenerate, and as with individuals so with institutions, they become effete or fossilised, if I may so term it, unless remodelled according to the times.

Who thirty years since would have imagined it possible that in 1885 a Dental Association on the basis of the British Medical Association, would hold its Annual Meeting in this important town? That the University would give its members such a hearty reception, would throw open its colleges and grounds for their entertainment, and offer the use of its public buildings for the Association meetings? Our warmest thanks are due to the authorities for this expression of their kindness, whereby our visit is made so enjoyable, and the complete success of our annual gathering ensured.

Although at present there are but few of our members who can rejoice in calling this university their *alma mater*, rest assured the day is not far distant when many dentists *in statu pupilari* will enter at the great medical school established here, and if a dental school similar to those at Edinburgh, Glasgow, Manchester, and Dublin were formed in connection with the University, would it not be both an educational and financial success? There is much in favour of such a scheme. The general and professional education of the dental practitioner ought not to be inferior to that of his, at present, more favoured medical confrere. The Medical Council being of this opinion with regard to general education, requires the same preliminary examination in arts in both cases before students are permitted to register and commence their professional course of study.

Now the University of Cambridge offers great advantages for the study of the collateral sciences. As I have stated, it already has attracted to itself a large medical school, and should it establish a degree or license in Dental Medicine and Surgery, its numbers would doubtless be considerably increased by the aspirants for honours in these subjects. The University laboratories for the prosecution and study of general science are admirably arranged, and there would be no difficulty in forming one for practical education in dental mechanics, upon the same footing as that which is said to be so full of promise at Dublin.

Our social progress will be commensurate with our educational advancement, of which indeed it must be the natural outcome, for mental culture brings social qualifications of the highest order, and these qualifications are fully recognised by the existing code of civilisation. In the future, men who are ambitious of taking the best social position the dental profession affords, will enter at one of the universities, as students of medicine are doing at the present day; for a university career to a professional man offers immense advantages in after life. A status is gained, friendships are formed, and a healthy and beneficial tone is given to the character by the associations of the place (provided the connections formed be happy and judicious), which, as years roll on, nothing appears to obliterate.

While reviewing the social prospect, I would draw attention to the difficulties which confront the recently qualified dental practitioner, who is desirous of establishing himself on a proper basis. If unable to purchase an introduction to a practice, he commences life under greater disadvantages than he would in any other profession. A surgeon has various resident and honorary appointments open to him, which materially assist him as stepping stones to practice, but a dentist, unfortunately, under present circumstances, has nothing of the kind whereby to obtain an introduction, but has as competitors a host of unscrupulous advertisers, who, by unprofessional means, attract the class he, as a rule, might expect to obtain his early patients from. It is easy to imagine the feelings of a young dental surgeon, who has been industrious in the pursuit of professional knowledge, and has passed the necessary examination for the dental license, when he sees patients consulting advertising charlatans, whilst he for days together is waiting for those who do not come, and brooding over his position, feeling he cannot resort to those measures

to make himself known which these unqualified persons revel in, and by means of which in many instances they accumulate considerable wealth. What is the remedy for this unfortunate state of things? Surely the time has arrived for the more general establishment of provincial dental hospitals, each with an adequate staff of duly qualified officers, or at least, for the more general development of the branch of dental surgery in connection with our local hospitals and other charities. The appointments thus thrown open to competitors would be an inestimable boon to the dental surgeon at the outset of his career, and would go far, by educating the public in the value of qualifications, to keep in check the chicanery and demoralising influences which have been so degrading to our profession in the past.

And again, the local branches of our Association, if properly developed, should be of great assistance to our younger members, in bringing about their introduction in the various localities in which they reside. Our parent Association will largely assist in our social elevation, by discountenancing all that tends to detract from our professional status, by enforcing a generally approved code of ethics, and by affording increased facilities for the interchange of ideas at its annual gatherings.

The social problem merges into the political, and the political prospect is favorable in direct proportion to the successful management and enlargement of this Association, whose primary aim is the faithful fulfilment of the various provisions of the Dentists Act of 1878. Time will eliminate all that is objectionable in the Act itself. It is for us to ensure the maintenance of its good clauses even at the sacrifice of our personal interests. We must regret the legislature did not appoint a public prosecutor to carry the cases of illegal practice into court, instead of requiring a private practitioner or an officer of the Association to become the prosecutor, thus placing the practitioner in a very invidious and painful position. The members of the Association are under great obligations to those who boldly, and at the risk of much professional annoyance, have undertaken such a disagreeable duty.

Doubtless this disadvantage in carrying out the Act will be remedied in the future by obtaining a further legislative measure to amend the defects rendered evident by practical experience.

The enlargement of the Association and the material increase of its influence will greatly depend upon the success of its local

branches. Our best efforts should be employed in extending its sway in this direction, by securing new members and increasing its intellectual advantages. The Branch Meetings should take place more frequently than heretofore, and in this respect we cannot do better than imitate the British Medical Association, whose local meetings are held at least quarterly, and whose branches are moreover associated with the medical societies which meet more frequently. The value of meetings for the discussion of subjects of professional interest and the reporting of cases of scientific and practical importance, cannot be over-estimated. We must ever regret that so much has been lost in the past owing to the non-existence of local societies for the discussion of these topics.

Our annual gatherings will also continue to be productive of much good by bringing together practitioners with different views upon various subjects requiring ventilation, and by affording opportunities for learning how little we know when our opinions are pitted against those of fellow-workers in similar methods of research. The positive and contracted ideas of individual members will thereby be enlarged and expanded by more enlightened views, the outcome of careful investigations.

If we examine the Dentists' Register, we observe that although some thousands of names are entered therein of persons who are not eligible for the membership of this Association, yet a great number who are not associated with us might join our ranks, and it is greatly to be regretted they do not see the advantage such a course would be to the profession. Union is strength, and if all eligible would offer themselves for election, the power and usefulness of this Association would be, indeed, greatly increased.

Many obstacles apparently have occurred to retard this expansion, but the day will arrive, when those who now from various motives stand aloof will see the great advantages to be derived from grasping the hand of fellowship held out to them.

Doubtless there are some members of the profession who at present remain unconnected with the Association because they consider the standard of membership is too low, and they ask themselves what *they* shall gain by seeking membership; not for one moment giving thought to the sacrifices made by so *many of our leading practitioners* in connecting themselves with it from its earliest formation, and the arduous duties they have undertaken to ensure its successful development.

To some the pleasure of assisting in the task of elevating

the position of the dentist is not appreciated or understood. Surely the advantages accruing to every practitioner, when his calling has been dragged out of the position it has occupied from its surroundings, ought to have some little weight with these ; but I am afraid on this subject a considerable amount of apathy prevails. May I not say, of one thing we may rest assured, all desirous of securing and maintaining good social status and enduring professional success in the future, must become members of our body—to hold aloof will be to court failure.

It is a pleasing feature of the times, that in this great dental movement of the last few years, the medical profession have recognized the dental profession as nearly allied to their own, and its qualified members as fellow labourers in the great work of relieving human suffering. For how frequently are the dental organs in a diseased condition the cause of much constitutional disturbance, which may be readily combated by a conjoint assistance in the case. And further, this interest in the progress of dental surgery has of late been shown by the papers read by eminent specialists and others at the meetings of the Odontological Society, by the interest taken by specialists in the papers read by dentists, and by the able manner in which they have joined in the discussions that occurred at the various meetings of that society.

We now come to the scientific forecast. The advancement of dentistry will depend largely on scientific investigation, by which I mean investigation executed on the basis of certain defined laws. The prospect is chiefly that of dental pathology and prophylactic dentistry or dental hygiene.

The histological anatomy of the teeth and their environment has been so thoroughly sifted in the recent past by the aid of the microscope, that nature can have but few secrets to reveal in this direction. The physiology of the dental tissues has been established on a more or less satisfactory basis, leaving but a limited field of enquiry for future observers, but dental pathology is as yet in its infancy, and offers a magnificent prospect for original research. Many and varied are the theories regarding the etiology of caries, greater or less weight being given to the so-called external causes—mechanical, chemical and parasitic, including the action of the food, the buccal secretions and air—while hardly sufficient attention has been bestowed on those more subtle internal agencies, developmental, nervous, vascular and trophic. Moreover, we have heretofore intermingled predisposing and

exciting causes. These must be isolated and duly classified before a satisfactory scientific basis can be established. How far parasitic germs can be the *materies morbi* it is not for me to determine, but analogy suggests the probability of their being concomitant with the disease, rather than the true exciting cause of decay. The air is ever impregnated with bacterial germs, and their nourishment being derived from the products of decomposition, the seats of decay offer a suitable *nidus* for their proliferation.

In the impaired nervous force, the altered qualitative and quantitative blood supply, and other trophic diminutions, we have what seem to be the true predisposing causes of caries. The exact point of origin of the disease may be purely accidental, arising from the agency of any one or more of the so-called external causes, the importance of which must be therefore largely discounted. The elucidation of this complicated subject might be accelerated by experimental research, by ascertaining the results of traction, section, and electrical irritation of the inferior dental nerve in animals, experimental alteration of the quantity of blood supplied to the teeth, and when possible, the quality of the same. But perhaps I am anticipating events too rapidly, so let me turn to a more general subject.

No matter connected with our profession is just now attracting more attention than the general deterioration in the structure of the human teeth of the present day. The older members of the profession especially are daily reminded of an alteration in the character of the teeth they are called to operate upon, compared with those of former years—for then usually they found a density of structure which augured well for successful operations, and the results of those operations were most satisfactory—but the teeth of the present period will seldom permit us to promise anything so favourable, from the acknowledged fact that the tissue upon which we have to operate is so defective in the combination of its constituents, although the operative skill employed has of late years immensely improved. To what is this change of structure to be attributed? This opens up a vast field for investigation.

The deterioration in the structure of the teeth which we observe, is not confined to one particular class of people in the civilised world. The highly fed and the poorly nourished appear to suffer alike. Nor does country or climate apparently exercise much influence upon the animal economy. English, French, Germans and Americans all seem on the decline as regards the

durability of these organs. The last named, probably, more than any of the other nations, which from an ordinary view of things would be considered anomalous—for when we have an admixture of fresh blood, we naturally expect to find a more healthy condition of the progeny—for such physiological characteristics apply to animal nature in every form.

We have reason to believe that man in a state of nature, free from the strain of mental pressure, and unattacked by the vices that accompany civilisation, escapes this morbid condition of the teeth. In the mouths of the wild denizens of the back woods, or the dwellers upon lands untouched by civilisation at the present day, or in the exhumed skulls of the inhabitants of this isle in the long distant past, we find well-developed maxillæ, and a bold regular arrangement of thirty-two dense teeth, generally quite free from the ravages of caries; but at the present day we meet with maxillæ extremely contracted and not admitting of the perfect arrangement of the thirty-two teeth when they are erupted. Then deficiencies in the number of teeth are often noticeable, for in many cases one or both the upper lateral incisors are absent, and one or more of the upper canines, if found in the jaw, fail to make their appearance through the gum. The wisdom teeth moreover are very frequently absent.

This deterioration of the teeth resulting from a departure from the laws of nature, has probably existed among civilised nations for thousands of years; for it is said that the inhabitants of the ancient empires of the world paid the same penalty from a like cause, if not to the same extent that we are now doing. That caries exists in almost every mouth at the present day, and that its victims during the last few years have increased to an alarming extent, we do not doubt, for of that we have daily proofs.

A question naturally arises—what physiological cause has brought about this change of structure? For it appears to be the only portion of the human frame that has exhibited this marked deterioration.

It is not my intention on the present occasion to discuss at length this difficult subject, but to suggest points for investigation that I imagine will amply repay those who have at their disposal the time requisite for such an undertaking.

Those who have had the opportunity of examining many cases of the teeth of persons from four generations of patients (which has fallen to my lot), will, I believe, acknowledge that the

teeth in each succeeding generation, as a rule, have become more and more degenerated as regards their structure, and are more prone to be affected by caries, that the teeth of females have deteriorated much more than those of the male sex, and further, that through the female line this deterioration is much more marked than through the male line, for a mother with very defective teeth will invariably have children whose teeth partake of the same character.

Acknowledging this deterioration, may not an attempt be made to discover its cause?

That the mind of the mother exercises an immense influence over the constitution of the child when in its foetal state no one can doubt, and is it not possible that in these days of constant excitement and of general unrest among all classes, that its baneful effects may have an influence upon the rudimentary dental organs of the child at this early stage. And may not also in these days, the high mental pressure permitted, and the artificial life of early childhood continuing in rebellion against nature's laws, carry on the degenerative process that had been so early commenced?

The result of an immoral life handed down from generation to generation tells with fearful effect upon the children of such parents, and the medical treatment in former times to combat the resultant disease, if not at the present day, has had its influence upon the formation of the teeth.

The diet of children during their early years, and until the teeth are fully formed, has been considered of great importance, although in some cases where this matter has been most strictly adhered to, the result has not always, I fear, proved satisfactory. It appears to me, that much cannot be accomplished in this important subject until we are in possession of statistics for our guidance, for without such assistance we are but groping in the dark.

Would it not be possible to ascertain certain facts from our patients which might be tabulated, from which data might be obtained that might guide us, as well as our medical friends, in advising such measures as might, to a certain extent, combat the result of agencies that are at work in producing these deteriorated teeth?

Collective investigation in the hands of the British Medical Association has already largely assisted in unravelling the history

of several obscure diseases, and if persevered in, will aid in furthering the rational treatment of disease as opposed to the empirical drugging of the past.

Collective investigation would eminently assist *us* in ascertaining the causes of this general deterioration in the structure of the dental tissues. We might enquire regarding, and record—

- (1) The age of patient.
- (2) The general health:
- (3) The number and general nature of the teeth.
- (4) Number diseased.
- (5) General health of parents and nature of their teeth.
- (6) If consanguinity existed.
- (7) Habits and diet of mother at time of birth.
- (8) Habits and diet of child in infancy and during juvenescence.

We thus arrive at the subject of prophylactic or preventive dentistry, or, as it may be termed, dental hygiene, that highest scientific branch of our profession in the future, which can alone be established as the outcome of the elucidation of the causes of disease, and will tend to place us higher in the estimation of the general public than the perfecting of any other branch of our art; for they will recognise in the advocacy of its principles that splendid abnegation of self which can have but one aim—the maintenance of the health of the community. We shall then work on the same lines as our medical brethren, who seek to prevent disease as much as to combat it when already existing.

Gentlemen, I feel I have already trespassed too much upon your time and patience, yet I cannot resume my seat until I have asked you to permit me to introduce a subject that deeply interests many who are present with us to-day, and who have worked so indefatigably to further the progress of an undertaking they have so much at heart. I allude to the Dental Benevolent Fund which is connected with this Association.

The annual meetings of this Association, in addition to their political and scientific character, include a certain amount of pleasure in its social and convivial form, and when entering into and enjoying these pleasures, may we not be reminded that in every profession and calling in life there are those whom adversity in some form or other may overtake, and that they need the sympathy and help of those who escape its heavy hand.

In the dental profession there are so many causes brought into

operation that tend to incapacitate the bread-winner of the family from supporting those who require his labour and exertions. All engaged in its duties are well aware that it is a most trying profession, and none but the strong can long stand with impunity the strain it too often proves upon the constitution. The eyes, as well as the brain, may unfortunately show the results of work upon a frame ill-adapted for it, and various diseases may be set up placing the practitioner *hors de combat*.

One of the rules of the Association states, "The object of the Benevolent Fund is to afford privately pecuniary relief when practicable to such necessitous persons as are or have been Dentists, and who have, or have not been, members of the British Dental Association or contributed to the Benevolent Fund, but who in the opinion of the Committee of Management may be deserving objects of relief, and to the Widows and Orphans of Dentists who were or were not Members of the British Dental Association or contributors to the Fund at the time of their decease."

Surely this is an object claiming our warmest sympathy and support. The Committee tell us they need greatly increased assistance to help those applicants deserving of relief, as the means at present at their disposal are totally inadequate to provide for all the cases requiring it.

There are many thousand dentists in Great Britain, nearly six hundred of whom are members of this Association, but I believe the contributors to the Benevolent Fund number about one hundred and seventy.

Before this annual meeting is brought to a close, let us hope the promoters of this Fund will have received promises of increased support, and that a desire will have been shown to assist in establishing it, through the various branches of the Association, upon a more extended basis. And when our duties here are over, and the pleasures connected with this meeting are among the things of the past, may we be enabled to look back upon it with unfeigned satisfaction, for in the midst of our personal enjoyments we did not forget the claims of the incapacitated dentist, the widow, and the orphan.

THE DINNER.

The Annual Dinner took place on the evening of Friday, the 28th, in the Hall of Caius College. Mr. Richard White, occupied

the chair as President, and amongst the visitors were the Master of St. John's College (Rev. Dr. Taylor), the Mayor of Cambridge (Mr. W. B. Redfarn), and Alderman Deck, Dr. Perkins, of Downing College, Dr. Anningson, Medical Officer of Health for the Borough, Rev. R. Appleton, Major Humphry, Dr. Bradbury, Dr. Roper, Mr. Howard Stables, and Mr. Hyde Hills.

The Royal Family and the Army and Navy having been duly toasted, Dr. SMITH proposed "the University of Cambridge." It would be quite unnecessary, he said, for him to expatiate at any length on the subject of this toast before such an assembly. He need not go back to the old legends connected with the origin of the University, or attempt to sketch the history of the commonwealth of seventeen colleges as it dated from the reign of Edward I., but would at once refer to the important code of statutes enacted so recently as 1882. For although the University of Cambridge could well boast of an ancient and honourable name and fame—it was only of later years that it had shown that more practical tendency which was the characteristic spirit of the age in which we lived, and had introduced many material and essential changes in its teaching and administration. In the onward march and advancement of the progressive sciences changes were inevitable. The human intellect would not consent to be bound down by old traditions, habits and customs, however sacred and venerable these may be. In its case, "stone walls do not a prison make, or iron bars a cage;" And no better illustration of this was to be found than in the modern history of the great institution of which he now had the honour to speak. Of the increasing vitality of that noble seat of learning he need make no remark to those, who, like himself, to-day had an opportunity of wandering through the marvels and wonders of the University museums, class rooms, and workshops. Let him call to mind what the University had done within the last few years and the results. Let him speak of the Professorship of Experimental Science, where master and pupils bared their arms for the work of the forge, the anvil and the bench, and where dynamo-electric engines, park gates, and even the steam boat, had been constructed not only by their own skill, but by their own hands; of the professorship of morphology, now graced by one of the distinguished name of Sedgwick, the worthy successor of him who died during the first year of his professorial career regretted by all who knew him; he referred to Professor Balfour, of Trinity College.

Let him speak of the chair of Physiology and Professor Michael Foster ; of Pathology filled by Professor Roy, of Edinburgh ; and lastly of the chair of Surgery filled by Professor Humphry as a labour of love—one who had never rested till he succeeded in getting his University installed as a school of medicine scarcely second to any in the kingdom. And for the advancement of these great ends let him remind them of the expenditure so willingly contributed—an expenditure which would 50 years ago have been set down as lavish or extravagant—since only during the last session the magnificent and liberal sum of £70,000 had been advanced by the Senatus. It was not to be wondered at then, that with this widened scope of teaching, with the removal of old barriers of exclusiveness, and increased consideration for the student of slender means, the number of University pupils was increasing yearly, and were being sent out as a credit and an ornament to the civilised world, and as adding a lustre to the land in which they lived.

The Rev. Dr. TAYLOR responded, thanking the assembly for the cordial way in which the toast had been received. Unfortunately, he said, there were only a few members of the University in residence to receive the Association, as was, indeed, to be expected at that time of the year, but he did not hesitate to speak on behalf of them all, and assure the Association of a hearty welcome. The assembly of a congress such as the present one, and other such congresses as were held from time to time in Cambridge, were one of the signs of the age, and it was not without its significance that that town should have been chosen for that distinguished gathering. Their presence there showed their increased interest—he thought he might say the increased interest of the country—in the affairs and working of the University, and he gladly accepted it as testimony of the fact that the Universities were really striving more and more to do effectually their work in the country. Their presence showed their appreciation of those efforts—it was testimony that they (the Universities) were widening their circle of interest and making their influence felt in every part of the country and in every department of science in the widest sense of the term. Allusion had been made to the changes which had taken place and were taking place. If they were to look into all the departments, and into all the details of these changes, he must say that the result was simply bewildering ;

but if they took a general view, one thing came out very clearly—namely, that there was pervading the whole of it a spirit of increased activity—a desire to do the work which lay before them more and more effectually in their every department and in their every faculty.

Dr. BRADBURY then proposed “Prosperity to the British Dental Association.” He said he was sorry he knew but very little of the work of the Association, but he had seen, enough to convince him that the Association was in a most prosperous condition. He gathered that the Association had been modelled after the British Medical Association, and having been rather closely connected with that Association, he felt sure that they could not have selected a better type after which to model their rules and regulations. The British Medical Association had been a very great success, and he felt sure the Dental Association would be an equally great success. He was reminded that the Association already numbered about six hundred qualified dentists, and he felt sure that before long all dentists who were worthy of being members would belong to it. He had never yet attended a meeting of the British Medical Association without coming away a wiser man, and he was sure those who had assembled at that meeting must carry away with them some new wrinkles, and ideas. The Association was so flourishing, that he felt sure that before long, like the British Medical Association, grants would be given for the encouragement of scientific objects. There were a great many points in dentistry which he was sure required investigation. If they could see their way in the course of time towards giving grants for the investigation of dental problems, they would feel that they had done a great deal to further the investigation of disease of the teeth. Speaking as a physician, he could not sufficiently thank the Association for what it had done for the doctors, and he congratulated the members upon the Association’s prosperity. He would conclude by coupling with the toast a name that was known wherever dentistry was practised, that of Mr. John Tomes.

Mr. JOHN TOMES, who was received with loud cheers, said:—Mr. President and gentlemen, you have drunk with great enthusiasm, “Prosperity to the British Dental Association.” Well, it is in your hands. You, members of the Association, can secure its prosperity, if you act with unanimity, and in the true spirit of the laws framed to govern the Association. The Association was

formed in the first instance to assist in carrying out the spirit and provisions of the new Dentists Act. That same Dentists Act was passed for the advantage of the public in the first instance, and for the advantage of dentists in the second ; and I believe we can all agree that the bargain was a fair one. It was not in any sense one-sided. Had it been in any sense one-sided in respect to the public, we should have demurred to carry it out ; had it been one-sided in respect to ourselves, the public would have rebelled, and we should have had the Act repealed. The manner in which we have sought to carry out our organization is partly by the formation of Branches in different districts of the country. Each Branch nominates to the executive of the Association,—or the Representative Board, as it is called,—a certain number of members, and these members are required to attend the meetings of the Board, and discuss questions that affect the general interest of the profession. A Branch determines all strictly local questions, and may discuss amongst themselves questions that affect the general interest of the profession, and may depute their delegates on the Representative Board to convey and advocate whatever opinion they may have formed ; but the Branches cannot properly address, except through the Representative Board, any public body interested in and influencing the prosperity of the dental profession. By this means we have up to this time presented one front, one centre, and that the Representative Board. The Government give us a certain amount of credit, and listens to our Council ; the medical authorities listen to our requests, and grant them whenever they are reasonable or practicable, or within their power to grant. If one Branch of our Association, on its own responsibility, addressed a medical corporation, or any other public body, that body would be utterly at fault ; it would not know what value to put upon the communication. If one Branch after another did this, the Association itself would be very soon discredited. It would no longer present to those in power that one solid front responsible to the profession which it now presents ; it would no longer have that great influence which the British Dental Association possesses now, as representing with unanimity the views that are regarded as necessary for the public good and for that of the profession. I am anxious that this view should be understood by ourselves and by the public, for I feel that no body of men can so accurately describe what is required for the prosperity of dentists as dentists themselves. No body of men

have a better right to say to a Government 'we ask you to grant us this or that privilege, for it will be not only to our advantage, but to the advantage of the public.' But supposing a number of dental bodies—Branches if you like—were separately to address the Government in memorials even to the same end, written in a different spirit—and they would assuredly be so written, for no two people would frame a memorial of the same nature in the same words,—I feel it would be a death-blow to the Association. There would be an end to our Society, there would be an end to the good we could do, and there would be an end to the possibility of any public body acting on our behalf. For neither the public nor any public body can unravel for use the relative merits of discordant schemes advanced with seeming authority by the representatives of a common subject. Comparative safety lies in reserving action until an agreement is come to by the discordants—a course adopted by the Government in the treatment of the many Medical Bills brought before Parliament during the last few years. Surely, I am not wrong in urging in the management of our affairs, the avoidance of this form of folly. The subordination of special to general interests, of selfishness to generosity, will not mar the fair front we present to society. So much for one aspect of the position. The great service we may render in promoting learning, in the education of our pupils, and in the encouragement of research, are fully recognised by the Association. We are, however, too young and too poor at present to advance very largely the means for the cultivation of science—all these are questions which, I think, will come up and be satisfactorily met as we become more numerous as a body. At present we number near upon 600 members, while on the Dentists' Register there are 5000. Of these a great number, I am sorry to say, are not eligible as candidates for membership, for one condition necessary to joining the British Dental Association is that a man shall conduct his practice according to professional usages. I need not describe to you the usages of professional conduct; it is common knowledge. There are many things of common knowledge very difficult to define, and really unnecessary to define, for everyone knows what is meant by the term "Professional Usages." Well, gentlemen, I have very little more to say on behalf of this Association, except that its cause might have been better advocated by others more capable of speech than myself; but I will contend for myself that nobody has a greater, a deeper interest than I have in the Association. No

one appreciates more strongly the great use it may be to the public and to our own profession. I cannot see that we could very well do without it. Our future, as practitioners of a branch of surgery, is rightly entrusted in the hands of the Medical Council, the governing body of the medical profession, or if not yet the governing body of the medical profession, I predict that it very soon will become so. Gentlemen, I thank you for the cordial reception that has been given to the toast, and I thank you also for the kind and attentive hearing you have given me, a very poor advocate of this good cause.

SIR EDWIN SAUNDERS then rose to propose "Prosperity to the town of Cambridge, and the health of his Worship the Mayor." The President, he said, had stated in his Inaugural Address that everything was in a state of change, and, he hoped, of progress, and it seemed to him (the speaker) that there were certainly three things which the world agreed should be reformed, viz., the three-volume novel, long sermons, and after-dinner speeches; he would therefore endeavour to discharge his duty in very few words. It had been his privilege last year to propose the toast of "The University of Edinburgh," on the occasion of the magnificent reception accorded to the Association in that beautiful city, and now the responsibility devolved upon him of returning thanks for the kindness and liberality with which the members had been received in this ancient and deeply interesting town of Cambridge—Cambridge, with its learned leisure, with its stately avenues, its sylvan glades, its silent cloisters, its ornate pinnacles and spires, its noble halls, its sacred fanes. Cambridge, the home of learning, the cradle of oratory, whether for the Bar, the Senate, or the Church. He gave as the toast, "The town of Cambridge, and the health of his Worship the Mayor."

The MAYOR OF CAMBRIDGE (W. B. Redfarn, Esq.) responded. He regretted that all the principal townspeople being away, they had been unable to make better arrangements for the reception of the Association. He himself had been away on his holiday and had only returned that afternoon in order to be present at that dinner. He had a close sympathy with the members of the Association because, like them, he drew; and, speaking as an artist, that which had interested him most was the collection of pictures, of which he had heard but had not yet been able to visit. He was told that many of them showed great merit. The exhibition showed that dental practitioners did not expend the whole of their

energies on their profession, which was, he thought, a healthy sign. In conclusion, he would only, on behalf of his fellow-townsmen, return thanks for the kind way in which the toast had been proposed.

Mr. R. W. WHITE (Norwich) proposed "Prosperity to the Union Society of Cambridge," and in so doing, acknowledged the kindness of the Society in placing their premises at the disposal of the Association. The Union Society had been in existence about 70 or 80 years, and had produced some of the most prominent speakers of the time, among whom he might mention Lord Macaulay, Lord Houghton, Sir W. Harcourt, Sir R. Bagallay, Mr. Trevelyan, Sir A. Cockburn, and Sir Chas. Dilke. He felt second to none in gratitude to the Union Society, and he wished it long-continued prosperity, coupling the toast with "the health of Mr. W. Howard Stables," one of its vice-presidents.

Mr. W. HOWARD STABLES responded. The Union Society, he said, was a public body in the sense that it had had among its members men who had taken a prominent part in the public life of the country. In the Church it had had men who had filled with dignity and eminence the Episcopal Bench, among whom might be mentioned the Archbishop of Dublin and the Bishop of Durham, while in the last and the present Government the members of the front Ministerial Bench were shared by the Society and that of Oxford. With regard to the action of the Union in doing its best to make the Association comfortable, considerations of an obvious character assisted the Society in coming to that conclusion. The Union had felt that no relations but the most cordial ought to subsist between two bodies of men who devoted themselves, with, he trusted, equal pains, to the interests of jaw. The Union Society was cordially thankful that it had been of some assistance to the Association. He was only expressing the feelings of every member of the Society when he bade the Association welcome.

Professor STACK (Dublin) proposed "The Dental Benevolent Fund." That fund, he thought, had very great claims upon the Association, which had before it the example of the British Medical Association Benevolent Fund, which had done an incalculable amount of good. Though the Dental Benevolent Fund had not yet assumed anything like the same proportions, yet he would venture to say that in comparison with the amount of money which had been subscribed to that fund an equivalent amount of good had been done by those to whom the distribu-

tion of it had been entrusted. The Committee had in that distribution exercised a judicious selection, and no person who had received that charity had been an unworthy object. This year over nineteen heart-rending cases had been assisted at the small average cost of £9 per annum apiece. There were many other deserving cases, but the funds at the disposal of the Committee were not sufficient to allow them to do more than they had done. He coupled with the toast the name of Mr. Oakley Coles, who had worked hard for the Fund, and who was the one of all others best qualified to respond for it.

Mr. J. OAKLEY COLES, in reply, said that the fund was doing its work quietly, and he hoped efficiently, but he was sorry to say that for want of sufficient means it was not doing all that it ought to do. He urged all the members to support the fund, observing that he wanted them to give, not because it was the fashion to do so, but because it was a personal duty incumbent upon them. Up to the present time the fund had not helped any members of the Association, but now there were two such cases in which help was required, in both of which men who had been members of the Association had passed away leaving their widows and children in great distress. He appealed to the members of the Association to try and realise their responsibility in this matter.

The PRESIDENT then gave the toast of "the Master and Fellows of Gonville and Caius College," and spoke of the cordial reception and assistance that had been given to the members of the Association by the Master of the College, who was also Vice-Chancellor of the University (the Rev. Dr. Ferrers), by Dr. Drosier, who had kindly placed rooms in the College at the disposal of the members of the Association, as well as by Mr. Grove, the Rev. Mr. Lock, and Mr. Roberts.

Dr. ANNINGSOON, who replied, gave a sketch of the history of Caius College, which was founded about the middle of the 14th century, and was the fourth which was founded in the University. He then referred to the meeting of the British Medical Association at Cambridge in 1880, and spoke of the gradual increase in the number of special sections. The medical profession was greatly indebted to dental practitioners for much valuable assistance, and he hoped before long to see a Section of Dental Surgery added to the list.

Mr. SPENCE BATE, in proposing "Prosperity to the Eastern Counties Branch," paid a well merited compliment to the zeal and

organizing ability of Dr. Geo. Cunningham. He hoped, for the good of the Association, that others might be found to equal him in these respects, but he felt sure that he could not be surpassed.

Dr. CUNNINGHAM said he wished to make his reply as brief as possible, but he felt that he was bound to do justice to those who had so actively co-operated with him in bringing about whatever success had been achieved. He thoroughly appreciated the kind way in which his name had been mentioned by Mr. Spence Bate, but he was not entitled to so much praise. Many besides himself had assisted in the good cause, and his obligations were so numerous that it would be difficult to acknowledge them all. He could only mention the obligations they were under to the Vice-Chancellor and the Fellows of Caius College, to the Master of St. John's, the Master of Peterhouse, the Master and Fellows of the college to which he was proud to belong—Downing, the Mayor and Deputy Mayor, Mr. Alfred Jones, sen., all the members of the Local Committee, and to his friend and colleague, Mr. Rhodes. He ought, perhaps, also to have mentioned the Union, but their acknowledgments to it had already been expressed earlier in the evening. They had tried to make the meeting a "best on record," and if they had succeeded the result was owing to the ready co-operation of various bodies, and of many individuals.

Mr. CHARTERS WHITE proposed "Our Guests," coupled with the names of the Rev. Dr. Appleton and Dr. Bogue.

These gentlemen having briefly replied, Mr. PARKINSON proposed "the health of the President," the toast being received with prolonged cheering.

The PRESIDENT in reply spoke of the great difference between the present state of the profession and its condition when he commenced practice forty-five years ago. Not only would such a gathering as he was then addressing have been impossible, but the idea of such demonstrations as they had seen the day before, the idea that men who could perform operations which excited the admiration of the profession should show publicly the way in which these operations were performed, would have been received with incredulity and derision. Although he had been partly instrumental in the foundation of that Branch, he did not deserve such a demonstration as they had given him, but he thanked them for it from the depth of his heart.

This concluded the proceedings. During the dinner the band

of the 1st Cambridge Rifle Volunteers performed in the quadrangle, and afterwards the speeches were alternated with glees sung by members of the Cambridge Glee Union.

ORIGINAL COMMUNICATIONS.

Excision versus Extraction.

By C. SPENCE BATE, F.R.S., Plymouth.*

AT a time when surgery is conservative in its treatment, and the greatest efforts are being made to retain parts that are only of secondary value, it is remarkable that in dental surgery the instruments available for the forcible removal of a tooth from its natural position, have of late years so largely increased.

That many of these are intended to expedite the operation and lessen the pain, is without doubt true, but it also surely evidences a foregone conclusion, that an operation being convenient is more likely to be determined upon.

It is now some fifty years since a Mr. Fay, of Liverpool, introduced into his practice the mode of excision of the teeth, in order to obviate the pain of extraction, but as his mode of treatment was, after the operation, to allow the roots of the teeth to take care of themselves, it was found that he had to remove a large number of the retained stumps for the purpose of getting rid of abscesses, gum boils, &c.; circumstances that induced him to return to the more common mode of practice, and extract the teeth bodily, rather than allow a portion to remain at the risk of future trouble and a second operation.

I have given this account of Mr. Fay's practice, not from any knowledge of my own, but from what I have heard when I was younger; but it should be taken into consideration that when Mr. Fay experimented on excision, the power of conserving the remaining stumps was not within the bounds of practical surgery as it has since become.

Long before Mr. Fay attempted the excision of the teeth that are situated in the posterior portion of the jaws, it was carried out and is still continued in relation to the teeth with simple roots,

* Read at the Annual General Meeting of the Association, at Cambridge, on the 27th ult.

which are largely retained for the purpose of supplying the loss of their crown with an artificial substitute.

If the operation be desirable and capable of being effectively pursued in the anterior portion of the mouth, there is no reason why it cannot be as successfully fulfilled at the posterior, the only reason as far as I can see is that our patients generally are in accordance with us in our practice in the former case, but are largely antagonistic in the latter, which coincides with the more convenient and easier mode of preparing the jaws for the reception of substitutes than that which entails a prolonged demand on our time in the necessary treatment that the stumps may require. Another apparently satisfactory reason for the removal of the stumps, is the self-satisfying argument, that when they are taken out, "they are certain not to pain again," but there are other effects which an extensive series of extractions will produce, that I think are of greater permanent evil than the risk of local disturbance that may follow the retention of an unsuccessfully treated stump or series of roots.

The amount of absorption that follows the loss of a tooth by extraction is very considerable, and when a large number are removed at the same time, the waste of osseous tissue is in a much greater ratio than in relation to the same number of teeth when extracted at various times. Nor is this the worst, for sometimes the waste goes on year after year, to certainly a less extent than at first, but so continuously that in some cases the tuberosity for the attachment of the lingual frenum may be seen conspicuously elevated as a prominent spine. Nor is this conspicuous waste of bone the worst possible feature, for in some instances the shock which the system receives is so great that it is sometimes long in its recovery. One such case has been brought to my notice within the last twelve months that terribly elucidates my meaning.

I learned from the patient herself that she had consulted me a year or so previously relative to her mouth, and that I had advised her to have no teeth removed but some eight or nine substitutes inserted. She was then probably on a tour of professional interviews, and ultimately appears to have fixed on one who would do for her the largest amount of work for the smallest amount of payment. The result was that she had every tooth but two second lower molars extracted, and when I saw her again the alveolar ridge was wasted to a small and narrow line round the jaw, and she was wearing an imperfectly-fitting set of teeth, arising from

the large amount of absorption that had gone on since the substitutes had been inserted.

One prevailing idea the patient had was that he who had extracted her teeth had ruined her for life, that he had deformed her in face and body, that she was fast becoming an unsightly person. To quote one of several letters that I received from her, soon after I had placed in her mouth another set. She writes :—

“I do not wish to trouble you with any correspondence, but I think my case needs an apology—I am grievously disappointed in the results. When I told you that I wished to be bigger, I was so pent up in the body that I could not understand for what cause I had been so treated and had so suffered.

“Now I find I am getting very stout every way, and that which had been brought almost to a climax, and which would have been very beneficial to me has all dispersed, and in order to make me stouter I find my body and face are distorted. My nose is still waving to and fro, which I suppose is acting on my spine and causing it to be knotted and crooked.

“My face is all on one side, as is also my body.

“I am almost afraid to wear my teeth, the vulcanite is expanding so, and I feel that with what is going on in my mouth I am further away from having my desires realised.”

The writing of one such letter as the above would be suggestive of an exhibition of feeling arising from some annoyance connected more or less immediately with the distress induced by the novel sensation of wearing an extensive set of substitutes for the first time. But when such letters are repeated and continued for a considerable period, when, added to this, the existence of the patient has become a burden to herself and friends, that medical treatment has had no power to remove the melancholy, that she has been compelled to have an attendant in constant association with her, I think we are forced to attribute this distressing monomania as the consequence of the removal of a large number of teeth and the great immediate personal change which a considerable amount of alveolar absorption induces.

Conservative dentistry is, I believe, the better surgery, and where the roots of teeth are retained in a healthy condition, the mouth is preserved in a higher degree of efficiency, both for personal appearance, ease, and comfort, as well as for the satisfactory application of artificial substitutes.

Unfortunately it has been too common a practice for the stumps

that are left in the mouth, being either the remains of decayed teeth or others that have been excised to admit of their replacement by substitutes, to be allowed to shift for themselves. The natural channel of the dental pulp is allowed to exist either as an open chamber to be occupied with oral deposits, or to retain the slough of the dental pulp and so pave the way to future periostitis and alveolar abscess.

Nor is the dentist wholly responsible for this condition of things, inasmuch as the general anxiety of the patient is not that the mouth shall be placed in a thoroughly healthy condition, but that the greatest amount of show shall be made for the least amount of personal inconvenience. Consequently all things like decayed stumps are allowed to take their chance, and a pus-discharging gumboil is looked upon as a valued safety valve against active pain.

It is not my intention to raise an indiscriminate determination that no tooth or stump should ever be extracted, but I do think that neither stump nor tooth should be removed that is healthily implanted in its alveolus or could be made so. Roots that are loose, roots that are inducing induration of the periodontium, roots that are the exciting causes of a chronic inflammatory condition of the gums, or are distantly connected with obscure pains of the head and various parts of the system; teeth that are inducing irregularities in the mouths of the young, particularly when they exhibit symptoms of a rapid and overmastering decay, are such as will need the skilful application of the numerous well-made forceps, and even take the power of diagnosing when and what teeth should be retained or extracted out of the category of empirical rules.

Frequently, however, we are not consulted, and a person will rush into our operating-room and demand the immediate extraction of a fairly good organ simply because it pains. Likely as not they will pitch upon the wrong tooth, and a contest arises between the patient and his dentist as to what is right to be done, and in this, as everything else, it will be found that the stronger will prevail, for, to use the words of a patient for whom I declined to remove a sound tooth that was condemned by its owner, "The person who feels the pain is the best judge as to which tooth to refer it."

Undoubtedly there are many cases where the pain is so intense that to the mind of the sufferer the only relief is the extraction of

the tooth, but in the present time, with the power in our hands of devitalising the pulp, in a large majority of cases, perhaps in all but under exceptional circumstances, more permanent and immediate relief can be given than by extraction. For assuming the worse condition of local aggravation, the pulp being destroyed, the surrounding tissues become rapidly amenable to treatment. The tooth, ceasing to pain, can readily have the pulp-cavity and roots emptied of the remaining slough, the chamber and canals being permanently plugged, and the useless walls reduced by excision to a level with the surrounding tissues.

The treatment of the anterior or single-rooted teeth, in consequence of their importance in restoring the natural appearance so perfectly, through the means of pivoted crowns, has long been under successful control.

The excision of one of these teeth when taken above the pulp chamber is comparatively a painless operation, in many cases the entire pulp coming away with the amputated portion; the root on being plugged either with the pivot of the newly adapted crown, or by means of any water-tight plug, becomes a restoration of the parts more natural and more permanently normal than can be produced by extraction under the most favourable circumstances.

That which has been done so frequently and so successfully for the teeth with a single pulp canal is also capable of being done with teeth of a larger number of both roots and canals. Undoubtedly the molars are larger and stronger organs, and the excision of their crown, if tolerably firm, might require a greater hand power than every dentist possesses; for the slightest deviation from rigid firmness and steadiness of hand is liable to dislocate the tooth in its socket, to give intense pain, and an after irritation that not only may require a prolonged treatment, but probably vitiate the success of the operation altogether.

The compound character of the pulps of the posterior teeth is another source of difficulty, for it is scarcely probable that the excising power shall be so equally distributed, that the branches of the pulp which traverse the different roots shall be simultaneously severed; consequently the force that ruptures the pulp of the anterior root of a molar tooth may only stretch that of the posterior, which being done for the smallest amount of calculable time must induce exquisite pain.

It appears to me, therefore, that the devitalization of the pulp

previously to the removal of the crown is a thing to be desired, and the excision should be by a series of cuts, rather than by a single operation.

The roots of the excised tooth being clean and healthy, the pulp chamber and canals being carefully and hermetically sealed, the alveolar processes of the jaws are preserved and the mouth is retained in a condition more in accordance with its natural appearance, and less liable to vary for a long series of years than when the teeth are entirely removed.

I am aware that many practitioners advocate this mode of practice as conscientiously as their patients will admit of their doing; but I think that it would largely advance the power of their advice and give increased confidence to their treatment if the subject received a full discussion by the profession, and it went forth as the dictum of this society, that the roots of teeth retained in a healthy condition is a thing to be desired, and that the preservation of the alveolar walls is synonymous with a youthful and healthy expression of the face.

ANNOTATIONS.

WE earnestly hope that our friends of the Western Counties' Branch will return to their usual custom of holding their Annual Meeting *early* in August, so that it can be reported in our issue for that month. For although the amount of space occupied in this number by the report of the proceedings at Hereford is not very great, it has seriously interfered with our desire to give a more connected account of the proceedings at Cambridge. As it is, we are only able to publish this month a report of the Business Meeting, with the presidential addresses, and the dinner. Next month we shall give a report of the proceedings at the Afternoon Meetings on Thursday and Friday, and at the meeting of the subscribers to the Benevolent Fund, together with some account of the demonstrations.

"COMPARISONS are odorous" said the muddle-headed Dogberry, so although those who planned and superintended the Meeting at Cambridge would not have anything to fear from comparisons with previous meetings, we will not attempt any. Suffice to say that, with every desire to criticize, we can only find

two matters on which to remark, and for neither of these can either the local or the central executive be held responsible.

IN the first place it is evident that a time limit must be assigned to readers of papers. This has long been the practice at other meetings of a similar nature to our own, the general rule being that no paper—presidential addresses of course excepted—shall exceed twenty minutes in reading. That such a rule would be no hardship is evident from the fact that of the papers read this year only two exceeded the time mentioned, and one of these only by five minutes or so. But when it is possible for one member to occupy fifty minutes by the clock, with evidently a strong inclination to occupy fifty minutes more, it is surely time that some understanding should be arrived at as to what may be considered reasonable under the circumstances.

THE dinner in the Hall of Gonville and Caius' College was excellent and admirably served, but here again it must be said that some of the speakers were decidedly tedious, and a ten minutes' limit would have been welcome. We are not altogether insensible of our obligations to those who are bold enough to face the difficulties of a post-prandial oration, but we should be still more grateful to them if they would speak briefly and to the point. Perhaps we may derive some satisfaction from the fact that the chief offenders on this occasion were not members of our body.

ALTHOUGH the business proper of the meeting did not commence till Thursday morning, there was a goodly attendance of members on the preceding day. Mr. Alfred Jones entertained the members of the Representative Board at dinner, and the extensive grounds of Merton Hall were utilized for the entertainment of the other visitors. It would be unbecoming to do more than allude to the hospitality of the ex-president of the Eastern Counties' Branch, but the success of the Merton Hall entertainment, provided by the same Branch, is a fair subject for comment. The effect of the illuminations was charming to a degree, and with the beauty of the music and the efficiency of the performers, combined to make a delightful evening; whilst to the

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care and forethought of Mrs. Cunningham those pre-
greatly indebted for the pleasant time spent at the ho-
son.

THE large Hall of the Union was made good use of on
when two well attended sittings of two-and-a-half ho-
were got through. The meetings on Friday occupied
hour less, and there were the Demonstrations in additi-
business commenced punctually at the time appointed
ceeded without a hitch till the discussion of the last
brought to a close soon after eleven o'clock on Saturday
when the President announced the conclusion of the
General Meeting of 1885, and left the chair.

THE display of instruments, chairs, and all the varied
now pressed into the service of our profession was exte-
interesting, but we regret to say that many of the men
had promised to give demonstrations were absent, and in
generous way in which others stepped in to fill up the
defections might have seriously embarrassed the execu-
caused great disappointment.

THE exhibition of pictures and other works of art, in-
Mr. Oakley Coles on behalf of the Benevolent Fund, c-
attracted much attention, and brought to light an a-
artistic talent which was fairly surprising. We hope we
forward to a similar exhibition next year, and that with r-
of art and many new exhibitors, we may be permitted
again, under more favourable conditions of light, son-
pictures which were shown at Cambridge.

THE great feature of the evening at Peterhouse was
the amateur music in the Hall, which was converted for
into a concert room. The violin performance of Miss Pa-
the singing of Miss Staples, Miss Houston, and Mr. W.
and the clever recitations of Mr. Harcourt, collected
audience as made the room impassable, whilst the
performance of the professional glee party, and even the
ment tent, were alike neglected and deserted.

THE park-like grounds of Downing College were admirably suited for the afternoon reception given by the President of the Association. The foliage was in perfection, and the scarlet uniform of the band of the Cambridge Volunteers enlivened a scene already made beautiful by nature's hand.

THE concluding event of the meeting was the excursion to Clayhythe. The party was a numerous one, but was comfortably accommodated on board one of Mr. Logan's large barges, and with a liberal supply of refreshments of all kinds, the journey by water was made very pleasant. After lunch the young ladies who had done such good service at the reception at Peterhouse again made us their debtors, and treated us to some most enjoyable duets and solos. Mr. Blandy, of Nottingham, had his camera with him, and carried away reminiscences of the event in the shape of photographic views of the locality and a group of some of our leading members. The party returned to Cambridge about six o'clock, and with this, by no means the least successful item in the programme, terminated the Annual General Meeting of 1885.

WE have, as usual at this time of year, to tax the patience of several contributors and correspondents. Next month our contents table will, we hope, resume its usual methodical arrangement. Our friends of the Western Counties' Branch, who complain of our abridged reports of their proceedings, will, we fear, be more firmly convinced than ever of the necessity for their proposed "Transactions;" whilst from the applications for "proofs," it would seem that we are expected to publish about half of the papers read at Cambridge in this number. Truly our lot is a hard one!

TO CORRESPONDENTS:—

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

Advertisements to Messrs. J. & A. CHURCHILL, 11, New Burlington Street, W.

All Correspondence for the Editor, Books for Review, and Exchange should be addressed to 40, Leicester Square, London, W.C.

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VOL

The Present Relations between Dental and Medical Education.

IN our August issue we promised to recur to the subject of Professional Education, more particularly with regard to the acquisition by the dental student of qualifications in General Medicine and Surgery, under the greatly altered conditions which have resulted from the recent changes in the medical and surgical curriculum. We will accordingly now place before our readers a reliable sketch of the present state of affairs, as to which we believe the members of the profession have at present very confused and even erroneous ideas.

The recent changes in medical education will affect the dental student somewhat in the following manner. With regard to the Preliminary Examination, which the College of Surgeons requires to be passed before the student's time spent in the workroom can be recognised. The student will have to pass in Elementary Mechanics, comprising

elements of Statics, Dynamics, and Hydrostatics, in addition to the subjects previously required, before he can register as a dental student. The same examination is required of candidates intending to present themselves for the M.R.C.S. and L.R.C.P. It is not now possible to take either the M.R.C.S. or L.R.C.P. separately, and in place of the separate examinations formerly held by each college, viz., three for the L.R.C.P. and two for the M.R.C.S., only three examinations are required to obtain the double qualification. Moreover, each examination may be subdivided, and in case of failure in one or more subjects, the candidate is only re-examined in that portion of the examination in which he failed.

The subjects for the first examination are Chemistry and Chemical Physics, Materia Medica, Medical Botany and Pharmacy, together with Elementary Anatomy and Physiology. A candidate may receive instruction in the first five of these subjects from any qualified medical practitioner or pharmaceutical chemist, or at any hospital or dispensary, before he has registered, and may be examined in them at the College of Surgeons immediately he has registered, and before he commences his hospital education ; but he cannot pass in the last two before the end of his first winter session. A student who wishes to take this double qualification and the L.D.S. should therefore receive instruction in these five subjects during his pupilage in the mechanical department and pass in them before he enters a hospital, which he should do in October. By so doing he would simplify matters considerably. Candidates who have already finished their mechanical training should in preference enter at a general hospital at the commencement of the Summer Session, when these subjects are taught, and should pass in them at the examination held at the conclusion of it.

- The subjects of the second examination are Anatomy and Physiology, and the candidate may present himself at the end of eighteen months' study at a recognized medical school. He should enter at a Dental and General Hospital at the same time, receiving instruction at both institutions coincidentally, and at the end of two years should be examined for the L.D.S.; it must be borne in mind, however, that four years of professional education subsequent to registration, are required before the student can present himself for this examination. This being disposed of will leave him free to devote the remainder of his time to preparation for the Final Examination. The subjects for this are Medicine, including Therapeutics, Medical Anatomy and Pathology, Midwifery and Diseases peculiar to Women together with questions on Forensic Medicine and Public Health. He may present himself for this examination at the end of two years after passing the intermediate.

Three winter and two summer sessions are now required, instead of four as formerly insisted on, and it is therefore possible with four years' of hospital work to obtain the three qualifications; but the three antecedent years must have been passed more or less at the work bench, making in all seven years' work necessary to obtain the three diplomas. So that, after all, the time occupied is not materially increased by the new arrangements, though the amount of knowledge to be acquired is greater than when the M.R.C.S. alone could be taken.

A dental student who has fully carried out the requirements for the L.D.S. diploma, and has been successful in obtaining it, holds the best qualification in dentistry which the world has to offer; and if he has availed himself of all the opportunities the dental hospitals provide, he should be a skilful practitioner and an expert operator, able to hold his own against all comers in his own specialty. Viewed

only in this light he might well rest content without any other qualification ; but this course, if uniformly followed, might perhaps tend to separate too much the branch from the parent stem—a result many would deplore, for dentistry is rightly considered but a *branch* of the “Healing Art.”

Dentistry is, *par excellence*, a profession in which manipulative dexterity is pre-eminently necessary, and the needful skill can be obtained only by a close and careful application in the early days of pupilage and at the chair side at the dental hospital. Yet though he who devotes his whole attention to dental manipulation, to the exclusion of more general subjects, may become a most skilful operator, there is nevertheless a danger that he may not acquire the amount of general professional knowledge which is necessary for a good professional position. This is, indeed, embraced in the dental curriculum, if the course of study therein prescribed be steadily and evenly followed, but as a further safeguard against any such narrowness, and in order that the professional relations may be preserved between the dental and general medical practitioner, we would urge upon the dental student, if his means will allow, to take, in addition to his dental qualification, either the diploma of the united colleges, or that of some other medical authority.

Every profession must have its grades, and the more gifted in means and ability will, as a rule, take the higher place. The Members of the College of Surgeons may be said to form the rank and file, the Fellows the officers of the medical army ; and the like relations will hold between the dental licentiates who have, and those who have not, a general medical qualification.

ASSOCIATION INTELLIGENCE.

Midland Branch.

A MEETING of Members and Associates will be held at the rooms of the Young Men's Christian Association, Sheffield, on Saturday, October 24th, at 6 p.m. Communications, either oral or written, are invited on any topic of professional interest ; notice of these should be sent to the Secretary before the meeting.

The Council will meet at 3.30 the same afternoon.

W. H. WAITE,
10, Oxford Street, Liverpool. *Hon. Sec.*

Central Counties Branch.

THE first Annual Meeting of this Branch was held at the Medical Institute, Birmingham, on Friday, the 9th inst., Mr. Chas. Sims, President, in the chair. Amongst those present were Messrs. F. E. Huxley, and Breward Neale (Hon. Secs.), Mr. J. Humphreys (Treasurer), and Messrs. W. H. Waite (Liverpool); W. E. Harding, and Roff King, of Shrewsbury; Arthur Levason (Hereford); W. R. Roberts (Lichfield); J. S. Crapper (Hanley); F. J. Thomason, and E. S. Hordern, of Leamington; C. A. C. Batten (Kidderminster); R. Owen (Wolverhampton); and F. R. Batchelor, F. W. Richards, T. F. Walker, G. D. Orrack, G. H. Richards, N. Petit, W. Fowler, G. Smith, F. H. Goffe, and J. E. Parrott, of Birmingham.

Mr. NEALE read the following report :—

GENTLEMEN,—Your Council are glad to be able to lay before you, on the whole, a very satisfactory report of the first year of this Branch.

The General Meeting for the formation of the Branch took place on September 20th, 1884, and two very successful meetings have been held since.

The total number of members is now thirty, exclusive of the *ex-officio* members, comprehending a large majority of the eligible practitioners in the district, together with seventeen Associates.

At the early part of the season a discussion took place, and other Branches were communicated with respecting the area to be covered by the Central Counties Branch; and it was decided that, while it was willing to receive members from any part of the

country, its places of meeting should be restricted to an area covered by a radius of fifty miles from Birmingham. The Council will therefore be willing to arrange a meeting at any town within that limit if invited to do so by the resident members.

In response to a request from the Executive of the Dental Benevolent Fund, the officers of this Branch have undertaken to act as a Committee to enquire into any cases which may apply for relief from this source. They also hope they may receive further help from those who have not yet subscribed to the Fund. In order to bring its benefits more forcibly before you, we may mention that at the present time five orphans are receiving education free by its means.

The Treasurer reported that the expenditure for the past year had been rather heavy, certain expenses, for printing of rules, &c., having been incurred which would not occur again for some time. He had therefore to report a deficit of 15s. 7d., but hoped to present a more favourable balance sheet on the next occasion.

The reports were adopted, and the election of officers for the next year proceeded with.

Mr. B. NEALE proposed, and Mr. Levason seconded, the election of Mr. F. E. Huxley as President. Mr. Huxley had worked hard during the establishment of the Branch, and Mr. Neale considered that the position was almost due to him. The motion was carried unanimously.

Mr. NEALE then proposed that Mr. Charles Sims be elected Vice-President; this was seconded by Mr. Crapper, and at once carried.

The re-election of Mr. Humphreys as Treasurer, and of Mr. B. Neale as Hon. Sec. was also agreed to, Mr. Huxley bearing testimony to the interest Mr. Neale had taken in the work of starting the Branch.

Mr. SIMS then delivered the following valedictory address:—

Twelve months since you did me the honour to elect me your first President, and I can assure you I deeply feel the high compliment you then paid me.

Most of you have read the Annual Report of the Parent Society, by which you will notice the gradual increase in the number of its Branches and members,—the establishment of this, the Central Counties Branch, making the sixth Branch formed,—also the valuable work done by the Association, so that I need not enlarge upon this topic. The number of its members now reaches 562.

BRITISH DENTAL ASSOCIATION.

Our Branch too shows a steady increase, the numbers and associates being now upwards of fifty. The work held during the past twelve months have been well attended and we look forward to increased prosperity in the future.

I was pleased to hear in the very able address delivered by the late President of our Association, Dr. Smith, at the Meeting at Cambridge, that the value of the Branch was appreciated. He made this remark, "the Branch of this large and influential society have exemplified the value of its operations, and testify to the important work within the short span of a single year in the advancement of Dental Surgery as a branch." I feel sure it will be the aim of all interested in the Branch to carry out in its fullest sense the high eulogy by our esteemed President.

In closing my year of office I feel I can with confidence say some good has been done. Many members of the Branch have been brought together in friendly intercourse, papers have been read and discussed, and much valuable information conveyed. We are all still students, and at the same time constantly find something new and interesting. We have much to do and much to find out. As dental surgery is a new field before us. Education has done much and is still to help us in our work. The best means of preserving the cause or causes of decay, and numerous others known to us all, offer a wide scope for study and discussion by students, or may I say the present generation of dentists, every advantage and facility for acquiring a thorough and practical knowledge of their profession, and we look forward with great results in the future. I do not think any profession has made such rapid strides in the education of its men in our own, and I believe it may be confidently asserted that completing the curriculum required by the Royal College the dental student now obtains the best possible means of fitting himself for his future career.

The Presidential addresses of the various Branches have exhausted the subjects we would like to speak on, and I shall best consult your feelings by being as brief as possible.

In conclusion, allow me to thank the secretaries and officers for their kindness during my year of office and the assistance rendered, and I am sure in my

Huxley you will have a President who is in every way fitted for the honourable post to which you have elected him. I trust that each succeeding year may find us more prosperous in every way, working together for that which we all have most at heart, viz., the true interests of our profession, scientific investigation, the promotion of friendly feeling, and the raising to the best of our ability the condition of the body to which we belong.

Mr. HUXLEY proposed a vote of thanks to the officers and Council for their services during the past year. The attendance at the Council meetings had been good notwithstanding the fact that a considerable proportion of the members came from a distance.

Mr. RICHARDS seconded the vote, which was at once carried.

Dr. WAITE moved a special vote of thanks to Mr. Sims for his services as President. The Branch must be considered to have been very fortunate in having secured a gentleman of Mr. Sims' energy and experience as President during the first twelve months of its existence, when there was a great deal to be done to get it into working order.

Mr. W. E. HARDING seconded the motion, which was carried with much applause.

Mr. SIMS having briefly expressed his thanks then vacated the chair, and Mr. Huxley having taken his place delivered the following short address :—

GENTLEMEN,—I assure you that it is not without some hesitation that I consented to step into the important post of President of a Branch of that large and influential body, the British Dental Association, especially following one so much my senior, and one who for many years has had an intimate acquaintance with what are known as Dental Politics. The only claim I have to this honour is a knowledge of the affairs of this the youngest Branch of the Association from its formation twelve months ago. The formation of the Central Counties Branch was not altogether free from difficulties, but we may safely assert that it has now outgrown these when we call to mind our successful and interesting meetings last winter.

Owing to the limited number of members in our immediate vicinity, we feared at first that there would be some difficulty in obtaining material sufficient for the meetings, but we always found that when the ice was broken we could be sure of an animated and interesting discussion. What have been termed everyday cases are always most welcome, and are sure to excite interest,

and I trust members will not wait to be asked, but will communicate with our Secretary whenever they can bring a case before our meetings.

The Branch has been the means of introducing many fresh members to the Association, and has besides a fair list of Associates. No effort has been spared to let every eligible practitioner in the neighbourhood know that he will be welcome to join.

Mr. Sims has reminded you in general terms of the objects and advantages of the Association and its Branches, and I would add that as members of this body a grave responsibility rests with us, viz., as set forth in our laws, "The maintenance of the spirit and provisions of the Dentists Act." The word *spirit* is used advisedly, a man may evade the letter of the law and still rank among the worst offenders against professional etiquette. We virtually take upon ourselves to set an example, and should therefore be careful to avoid the slightest approach, however indirect, to those practices which we claim to discourage and denounce.

It is extremely gratifying to see so many visitors from a distance at this Annual Meeting, and although the attractions of our town may not in some respects be equal to those of some other places, yet any who can stay over to-morrow and avail themselves of the advantages offered in our programme, will, I am sure, see many things not only of general interest but with a direct bearing on those arts which we call in to help us in our daily practice. The new laboratories for metallurgy and practical mechanical operations are on a scale admirably suited to any student of the mechanical part of dentistry. I therefore trust that our visitors will find this gathering both enjoyable and useful.

Mr. J. HUMPHREYS then exhibited his beautiful series of specimens of the skulls, jaws and teeth of the British Mammalia, and gave a short demonstration of the most interesting points in their dentition.

Mr. F. W. RICHARDS read a short paper on the Hebst Method of Gold Filling, illustrated with specimens and demonstrations.

Mr. HUXLEY read a paper on Dental Education, which we shall publish on the first opportunity.

Mr. BREWARD NEALE showed models of some interesting Regulation cases, and related some particulars respecting them.

Mr. CHAS. SIMS read notes of a case of Dentigerous Cyst, and exhibited the models and teeth. The patient was a healthy-looking boy, ten years of age; one of a family of six, all of

whom were healthy and presented nothing unusual as regards their dentition. He had never suffered from any serious illness.

When first seen, the lateral and canine teeth were absent on the right side of the lower jaw ; all the others were in regular order. The boy's father stated that there had never been any temporary teeth in the place of those missing, but that for some time past a swelling had been noticed which had gradually increased in size, but which had never caused any pain. Models were taken, and the patient was told to come again in a fortnight.

At his next visit chloroform was administered, and Mr. Sims proceeded to open what he had already diagnosed to be a dentigerous cyst. It was found to contain a mass of small ill-formed teeth, presenting the usual character of supernumerary teeth, thirty-five in number. There was no pus. Mr. Sims added that two similar cases were mentioned by Mr. Tomes, one being the counterpart of that which he had just related.

Mr. F. E. HUXLEY related some cases of necrosis of the jaw in children, mostly due to constitutional weakness or the result of the exanthemata ; but in one case in which a remarkably large sequestrum was removed, no obvious cause could be assigned.

Mr. FOWLER, Surgeon to the Queen's Hospital, described a remarkable case of phagedœnic ulceration following the extraction of a loose tooth in a patient sixty years of age. It involved half the lower lip and chin, exposing the maxilla, but was ultimately arrested by the application of fuming nitric acid, and the patient was then in good health.

This concluded the meeting.

In the evening the members, with several medical guests, dined together at the Grand Hotel, and a very pleasant evening was spent.

The Annual General Meeting of the Association.

Thursday, August 27th.

(Continued from p. 542.)

THE PRESIDENT, at the conclusion of his Address, called upon Dr. WAITE to exhibit the specimens of Pre-historic Dentistry, a description and illustration of which appeared in our last number ; they were examined with great interest by the members present.

The meeting was then adjourned.

At half-past two the members again assembled in the large Hall

of the Union Society, Mr. R. WHITE, President, in the chair, and Mr. SPENCE BATE read the paper on "Excision *versus* Extraction of Stumps," which we published last month.

At its conclusion, the President having invited discussion,

Mr. CHARTERS WHITE said that as an old practitioner he should be glad to say a few words in support of the views which Mr. Spence Bate had so clearly put before the meeting. He knew that professional opinion was very much divided on this subject. Some advocated the extraction of every root, and thought that all sorts of troubles arose from their retention. His experience was that this practice was attended by serious after-difficulties. After a number of roots have been extracted absorption begins to take place; this may not give much trouble at first, but after a time the gums become so flat from the continued absorption of the alveolar process, that the artificial teeth will not keep in their place, and roll about in such a manner as to cause great annoyance to the patient. He had, therefore, for many years made a rule of retaining all teeth that were sound and would bear pressure, but removing those which were diseased, which were painful on pressure. It was a most difficult task to treat a patient whose gums, especially on the lower jaw, were so flat that there was nothing to keep the lower frame steady, and he always felt greatly concerned when he saw old patients who had worn a set for years with comfort, gradually getting their lower gums so flat that nothing would keep the teeth in place. He, therefore, hung on most tenaciously to even one root in order to get some anchorage for the lower frame.

Mr. HENRY BLANDY (Nottingham) said he had to confess that his practice was to extract all stumps and teeth which could not be stopped before putting in artificial teeth. He did so on the principle that if you leave stumps in the head, you leave a possible source of irritation, and you don't know when those stumps may get into a state of periostitis and set up an abscess; and if you have to extract a stump after an artificial denture has been fitted, you leave a gap under it where food collects, and in fact destroy the value of the plate. A decaying stump was also a source of mischief in that it harboured moisture and decomposing food, and thus caused an unhealthy state of the mouth. As to the plate moving about owing to flattening of the gum from absorption, he thought that could be overcome. He had conquered it even on perfectly flat gums by loading the plate. He modelled up the

teeth in wax, cut away a good portion of the outside of the wax, sinking it teeth downwards in plaster in a flask, and filling up a second ring placed on the top with plaster, melting out the wax and heating the plaster matrix, then pouring in pure tin, and afterwards covering the whole with vulcanite. This was not new; he believed Mr. Sercomb used to adopt the same plan with the same object in view. He thought, therefore, that by taking out roots which were likely to be offensive a great source of danger was got rid off, and that when absorption had taken place, it was quite possible to fit an artificial base which would remain useful for years.

Mr. GORDON JONES (London) thought that the majority of dental surgeons were now in favour of the preservation of teeth whenever it was possible to do so, and by proper filling and the bevelling of all rough edges, this was possible in a large number of cases. There could be no doubt as to the advantage of retaining stumps; it prevented absorption, and the patient escaped the nervous shock which, as Mr. Bate had pointed out, was occasionally attended with very troublesome consequences. Mr. Spence Bate had advised complete devitalization of the pulp and filling of the root canals. He (Mr. Jones) thought that if the vitality of a portion of the pulp could be preserved it was an advantage, and that an endeavour should be made to preserve it. Of course it was always advisable to remove any doubtful stumps which appeared likely to act as foreign bodies or irritants after the insertion of the artificial substitutes. But he thought that as a rule dental surgeons should endeavour to adopt the conservative principle which was the aim of skilful practitioners in other branches of surgery.

Mr. S. J. HUTCHINSON said he could fully endorse what Mr. Blandy had said with reference to the advantage of weighting the lower plate in cases of shallow gums. But having been associated with Mr. Sercomb for three years, he thought it right to state that he used platinum and not tin for this purpose, and as the specific gravity of platinum was ten times that of tin, a much smaller amount of metal sufficed.

Mr. WALTER CAMPBELL said it was all very well for young men who had not yet lost all their teeth and been compelled to wear a heavy plate, to advocate their use. If they had the misfortune to wear a heavy plate, as he himself was obliged to do, they would not find it such a nice thing, and he could assure them he

regretted exceedingly when he lost his last solitary lower tooth. He thanked Mr. Bate for his valuable paper, to every word of which he would, after his long experience, most cordially say "Amen." He would recommend all practitioners, and especially young ones, to retain all the stumps they could, and especially the stumps of lower teeth, which were much more valuable than upper ones. As a rule upper teeth could be supplied in such a way as to be very efficient indeed, but it was not so with lower teeth; indeed it was only exceptionally that these could be supplied in such a manner as to be as efficient as natural teeth. He therefore always urged his patients to put up with a greater amount of pain and inconvenience with the view of saving lower teeth, than was necessary in the case of the upper. He would again endorse every word which Mr. Spence Bate had said in his paper, and hoped that it would be carefully read when it appeared in the Journal.

Mr. J. R. BROWNLIE (Glasgow) said there was a point of some importance which Mr. Spence Bate appeared to have overlooked, but which went to support the views he had expressed in his paper. He (Mr. Brownlie) felt a little bashful about confessing his personal experience in this matter, but as Mr. Campbell had broken the ice he did not mind owning that personal experience had taught him at least one very valuable fact, and that was that when roots existed which were capable of sustaining pressure the patient could masticate with artificial teeth almost as well as with natural, but when the roots were gone the power of mastication was immensely reduced. It seemed that the gum would bear a certain amount of pressure, but no more. He had at one time performed feats with his teeth which he could not do now; the roots which then supported the lower teeth having come out, he found himself much worse off than he had been before. For many years past he had made a practice of allowing roots to remain whenever it was possible to do so, and he could not say he had ever met with a single instance, where reasonable care had been exercised, in which any harm had resulted from their retention.

Mr. W. HEADRIDGE (Manchester) said he had for a long time past adopted the practice of retaining roots whenever possible, even at the expense of repeated fillings. The inconvenience resulting from the loss of roots was, however, as a rule, much greater in the lower jaw than in the upper. The upper, even

when the gums were flat, presented a much broader surface, and a well adapted upper case could be retained in the mouth much better than a lower one. He certainly thought it was wise to retain stumps in the mouth as much as possible, and that so long as these kept tolerably firm artificial teeth could be worn more comfortably than without them; and he hoped that as they advanced in life, those practitioners who adopted the plan of extracting stumps would see the wisdom of adopting the course of preserving them.

Mr. BALKWILL (Plymouth) said he had derived great satisfaction from retaining all the stumps he could, and he had found it especially important to preserve the stumps of the lower front teeth. He had recently met with cases in which great trouble had arisen in consequence of the extensive absorption which had followed the loss of all the lower front teeth, and he himself always made a point of retaining the stumps of these teeth if this could be done by any means.

Mr. J. S. CRAPPER (Hanley) said he could from personal experience endorse what Mr. Campbell had said as to the importance of retaining the natural teeth as long as possible. The only teeth he had left were six lower front teeth, and these were at one time so loose that several of his professional friends strongly recommended him to have them removed. There was a discharge from the sockets, and by following the course of treatment generally adopted in cases of pyorrhœa alveolaris, they were, by the exercise of great care and patience, preserved, and he hoped they would remain firm for some time to come. But whilst he thoroughly approved of the practice of preserving stumps, he felt bound to say that, according to his experience, more harm was done by retaining stumps than by their extraction, and if stumps were allowed to remain which became a source of irritation and disease,—as for instance upper stumps might set up disease in the antrum,—the consequences were sometimes serious. In doubtful cases he thought it wise to be on the safe side. There was another point he should like to refer to. It was not an uncommon thing for practitioners to say to their patients “I have supplied you with a set of teeth which will last you your lifetime.” But absorption would take place whether the teeth were extracted or not, though of course more rapidly when the teeth were removed, and in the course of a few years, if the patient was to derive the comfort he ought, either remodelling or the substitution of a new set would probably be necessary.

Mr. NEWLAND PEDLEY remarked that the wholesale extraction of teeth sometimes practised was itself not unattended with danger. Lesions of the inferior dental nerve were not very uncommon; necrosis of the bone sometimes occurred; he had met with a case in which severe and persistent neuralgia followed, and the removal of a V-shaped piece of the alveolar process was found necessary; and in another case the septum of bone covering the inferior dental nerve was so thin that the pressure of an artificial denture caused pain along the course of the nerve.

Mr. ALFRED JONES, Sen. (Cambridge) said that having had a good deal of experience in the subject under discussion, he thought it his duty to give the results of it. There could be no question that all diseased stumps should be removed in preparing a mouth to receive a denture, and that it was desirable to retain every good and sound stump. A stump should never be removed unless it was diseased, and he believed that if as much attention was given to stopping stumps as was given to stopping teeth, the former would last much longer than they did. One great reason for retaining lower stumps especially was that the mouth was less liable to change than when they were removed. If the stumps are removed absorption goes on continuously and it is impossible to make a permanently fitting case, but if some good stumps can be retained we may rely upon having a firm and comparatively unchanging base, and one that will support almost any amount of pressure. It was therefore always a relief to him when a patient came to be supplied with a set of teeth to see some stumps, and he considered it a most reprehensible practice constantly to remove them. Of course it was a point which could not be generalised about; it must always be left to the practitioner to decide whether in any given case stumps should be removed or not, but he should advocate their retention whenever they were sound.

Mr. B. W. HARCOURT (Norwich) said that during his practice of nearly thirty years it had been his rule to retain, whenever possible, at least six stumps in the lower jaw.

Mr. T. COOKE PARSON (Bristol) said he fully agreed with the opinions expressed in Mr. Spence Bate's paper, and he would add that whenever a root appeared capable of supporting a Richmond crown he would advise one of these being put in.

Mr. SPENCE BATE, having been called upon to reply, said he was glad to find that his views had been so generally sup-

ported. The view he had wished to put forward was that whilst it was desirable that the dentist should get the mouth into a healthy state, it was also desirable that he should retain everything he could in a healthy condition. If when you met with healthy stumps you filled them, you reduced the chance of their becoming a source of irritation and disturbance, and you did a great deal towards retaining a youthful appearance. With reference to what Mr. Parson had said, he (Mr. Bate) might state that he happened to have in his own mouth a stump capped with a Richmond crown, and he hoped it might be one of the last he should lose. His paper was intended to show that the mouth could be maintained in a healthy condition by the proper treatment of stumps, and that its form could thus be better preserved than it could be after their extraction, and he was glad to find that this appeared to be the general opinion of the profession.

The PRESIDENT thanked Mr. Spence Bate for his paper, and added, that he was pleased to find that it had elicited so much confirmatory evidence in support of the views expressed in it.

Mr. STORER BENNETT then read a short paper on "Further Experiences with the Herbst Method of Gold-filling," Dr. C. M. Cunningham followed with one on "Cast Metal as a Base." Mr. W. M. Fisher next read one on "Compulsory Attention to the Teeth of School-children," then Mr. Oakley Coles on "The Hopes and Fears of Dentistry," Mr. Charters White on "Section-cutting of Dental Tissues," and Mr. S. J. Hutchinson on "The Necessity for Teeth after Fifty Years of Age." Mr. Spence Bate and Mr. Frank Harrison made some remarks with reference to Mr. White's paper, the others elicited no discussion.

At the termination of Mr. Hutchinson's paper the President thanked the authors of the papers on behalf of the Association and adjourned the meeting.

The members then proceeded to Trinity College Chapel, where Mr. G. F. Cobb, M.A., displayed with great taste and skill the capabilities of the magnificent organ belonging to the College.

In the evening the members, together with a large number of friends and visitors, assembled at a *Conversazione* given by the President and Council of the Eastern Counties Branch at St. Peter's College. The large dining hall of the College was tastefully decorated and fitted up as a concert room, and it may be

safely said that the vocal and instrumental music provided was of a kind not often met with under such circumstances. As we mentioned in our Annotations last month, the music was varied by a couple of very amusing recitations by Mr. B. W. Harcourt, of Norwich, and some excellent glee singing by members of the Orpheus Glee Union also formed part of the programme.

The Dental Benevolent Fund.

THE Annual General Meeting of the subscribers to the Benevolent Fund of the British Dental Association was held at Cambridge, in the Debating Hall of the Union Society, at 10 A.M., on Friday, August 28th, Mr. R. WHITE, of Norwich, President of the Association, in the chair.

The PRESIDENT said he was sorry that the Dental Benevolent Fund, the present condition of which they were about to discuss, had not yet attracted the attention which he had hoped it would do. He trusted, however, that as time went on people would have their eyes opened and their feelings touched, and would be induced to support a movement which he considered was calculated to be of very great benefit to the profession generally. He then called upon the Hon. Sec. for his report.

Mr. OAKLEY COLES read the report of the Committee as follows :—

Your Committee beg to submit to the Contributors to the Benevolent Fund of the British Dental Association the Second Annual Report.

The Treasurer's financial statement, duly examined and certified by the Auditors, extends from the foundation of the Fund, in 1883, to the financial year ending June 30th, 1885.

The account of the general work of the Committee extends from June 30th, 1884, to the present time, and is made in accordance with Rule XX.

A list of contributors during the past year has been prepared, and is open to the inspection of members prior to publication.

Nineteen cases have received assistance during the last year, including two girls who are being educated; three boys who are being educated, and thirteen widows and others who are being helped, of whom it is contrary to the rules of the Fund that we should give any detailed account.

BENEVOLENT FUND OF THE BRITISH DENTAL ASSOCIATION.

BALANCE SHEET AS AT DECEMBER 31st, 1884.

Dr.	£	s.	d.		Cr.	£	s.	d.
Donations	Benevolent Allowances	...	...	...
Subscriptions	Printing and Stationery	...	...	...
					Postages and Miscellaneous	...	...	...
					Investment of Capital (£535 8s. 9d., 2½ per cent. Consols)	...	...	...
					Cash in Bank of England	...	223	14 11
					Cash in hands of Treasurer	...	2	1 0
							225	15 11
							£866	3 0
					(Signed) ASHLEY GIBBINGS,			
					W. F. FORSYTH,			
					W. ASH,			
					Auditors.			

BALANCE SHEET AS AT JUNE 30th, 1885.

Donations	...	...	...	...	Benevolent Allowances	...	...	...
Subscriptions, 1884	...	...	...	...	Postage and Miscellaneous	...	...	...
Subscriptions, 1885	...	...	...	...	Bank of England, at June 30th, 1885	...	...	...
Bank of England, at January 1st, 1885	...	...	...	...	Cash in hands of Secretary, at June 30th, 1885	...	...	...
Cash in hands of Treasurer, at January 1st, 1885	...	...	...	...	Investment of Capital...	...	...	...
							£383	18 5
							£383	18 5
					(Signed) ASHLEY GIBBINGS,			
					W. F. FORSYTH,			
					W. ASH,			
					Auditors.			

August 4th, 1885.—We have examined the books of the Benevolent Fund of the British Dental Association, and hereby certify the above Balance Sheet to be correct.

INVESTMENT FUND.

Donations of £5 and up- wards paid ...	...£633 8 0	1884 July 31.—Invested in 2½ per cent. consols ...£500 0 0
		1885 March 6.—Ditto ditto 114 10 0
		Balance in hand ... 18 18 0
	<u>£633 8 0</u>	<u>£633 8 0</u>

The education and support of the children alone involves an outlay of nearly £100 per annum, and we have several cases that must be a charge upon your Fund for as long as they live.

The number of those who have received your bounty could easily have been largely increased if the greatest care had not been exercised, in order to avoid giving money to the worthless and improvident. As it is, the aid that has been given has, your Committee believes, been both timely and efficient.

The number of applications that would command the sympathy of every member of the profession is steadily increasing, and, in the nature of things, they must continue to increase. Men break down sooner in health as the struggle for life becomes intensified, and die before it is possible to make any provision for wife or children. Thus it has come within the duties of your Committee to bury the dead, and then support the widow and children. These cases are not heard of, for the sorrowful are often silent, and in a large profession the dead are soon forgotten.

Whether those who are left behind can be helped by your Committee depends entirely upon your consciousness of "the burden of obligation" that should impel you to give adequate support to the Benevolent Fund. Your Committee are glad to be able to report that the following Dental Hospitals and Schools have, in answer to an application, most generously undertaken to grant free scholarships to those who have been educated by the Fund, and may be nominated as suitable candidates for admission to the dental profession.

In view of the future necessities of the Fund, your Committee feel that the thanks of those present at the annual meeting should be accorded to the various members of the staff for their great kindness in so readily acceding to the request of your Committee:—

The National Dental Hospital.

The National Dental College.

The Dental Hospital of London.

The London School of Dental Surgery.

The Victoria Dental Hospital and School, Manchester.

The Liverpool Dental Hospital and School.

The Dental Hospital of Exeter.

The Dental Hospital of Dublin.

Local committees for carrying out the work of the Fund have been formed by

The Midland Counties Branch.

The Scottish Branch.

The West of Scotland Branch.

The Central Counties Branch.

The Western Counties Branch.

Your Committee believe that these new centres of activity will be of very great service in carrying out the work of the Fund.

Acting upon a suggestion made by Mr. Harrison of Sheffield, collecting cards have been prepared for issue to the various Branches in order that the work of the Fund may be brought more directly under the notice of those members of the profession who have not hitherto given anything to its support.

The method of canvassing proposed by Mr. Harrison is a most self-denying one, as it involves a personal appeal to at least ninety-five per cent. of the entire profession, or about five thousand eight hundred people. Through the kindness of Messrs. Ash and Sons, 7,000 reports and appeals were sent out last autumn, free of any cost to the Committee for distribution.

The thanks of the Committee are due to Mr. W. Ash, Mr. W. F. Forsyth, and Mr. Ashley Gibbings for their kindness in auditing the accounts of the Treasurer, and also to Mr. Tawse, a professional accountant, who, at the suggestion of your Treasurer, most kindly supervised the system of book-keeping and prepared the balance sheets presented to you in the Report. The labours of this gentleman have been most valuable in making the financial statements both business-like and clear.

The Report and Balance Sheets were at once adopted.

Mr. OAKLEY COLES said he should be glad to take the sense of the meeting with reference to the publication of this report. In the ordinary course of things it would be published in the Journal, and the question was as to the desirability of sending it to every member of the profession, which would involve an expenditure of

about £20. There was great difficulty in bringing the existence of the Fund within the knowledge of the profession, and it was only by constant appeals that its members could be brought to know anything about it. It was for the meeting to decide whether it would be desirable to expend this sum in making the Fund more widely known.

Mr. J. S. TURNER said he should be glad to know the opinion of the Secretary himself, whether he thought there was likely to be a sufficient return for the extra expenditure. He (Mr. Coles) had had some experience with regard to these appeals, and he (the speaker) should be disposed to follow his advice in this matter. Would Messrs. Ash again consent to send out the report?

Mr. COLES said he had no doubt that Messrs. Ash would again undertake to distribute the report, and as to the return which might be expected, he thought a sufficient number of new subscriptions might be obtained to cover the cost of the appeal, and if these subscribers continued their contributions these would be clear profit in subsequent years. He thought that the money spent in the issue of another general appeal to the profession would be well spent.

Mr. TURNER said that in that case he would move that the report and balance sheets should be printed in the form of a small pamphlet and circulated through the medium of Messrs. Ash if they would kindly consent to give their help.

Mr. W. CAMPBELL said he questioned the wisdom of sending these circulars through Messrs. Ash's agency. They would be enclosed with other matter, and would in many cases be thrown aside without being looked at. He thought if they were sent directly to the profession they would probably meet with more attention and would bring in more money. The cost of postage would have to be added to that of printing, but he thought the money would be well spent.

Mr. HUTCHINSON said he thought there was a great deal of truth in what Mr. Campbell had stated. Circulars had already been sent out once or twice in the way now suggested, and he did not think the result had been satisfactory. He would suggest that double post-cards should be sent, one having a brief appeal or condensed report printed on it, and the other a form of promise of subscription to be filled up and signed; the cost of this would be about £30. The expenditure might seem large, but he thought it would be more likely to produce a return. He would propose

as an amendment that, instead of a copy of the report, reply post cards such as he had described should be sent to every member of the profession.

Mr. COLES said he thought the Committee were bound to issue a report and send it to the subscribers ; the question was whether only some three hundred copies should be printed, or a larger number. He admitted that Mr. Hutchinson's plan might be more effective.

Mr. CRAPPER thought it would be sufficient if the report was published in the dental journals. The Journal of the Association, the *Dental Record* and the *British Journal of Dental Science* together reached a large number of readers. He thought the expenditure proposed was rather a waste of money, but of the various plans which had been suggested he was most in favour of the postcards.

Mr. MORTON SMALE thought the postcards would be the best plan, and the one most likely to obtain replies.

The PRESIDENT said he considered Mr. Hutchinson's proposition an excellent one ; he thought the postcards would be much more likely to secure attention than the full report, which in many cases would be looked upon as a circular and thrown into the waste paper basket.

Mr. OAKLEY COLES remarked that it would be impossible on a postcard to enter into any details with regard to the objects of the Fund, or give any particulars respecting the cases relieved. Then again it was found that many people only subscribed because others did so, hence, a list of subscribers was useful. It was for these reasons that it was desirable to distribute a report of this kind broadcast.

Mr. HUTCHINSON said that in his opinion it would be sufficient to have the report, and some account of the proceedings at that meeting, published in the journals, and he would move that a short appeal on a postcard be sent to every member of the profession. This should give a brief financial statement, without details ; a notice of the number of cases relieved during the past year, and a request for a contribution. He thought a brief appeal of this kind would produce a better effect than the sending of a long report which would take some time to read and would therefore be probably thrown aside.

Mr. CAMPBELL seconded Mr. Hutchinson's proposition.

The PRESIDENT said that according to the rules it appeared

that publication of the report in the Journal of the Association was sufficient; there was nothing said about a copy being sent to each subscriber.

Mr. Hutchinson's proposition was then put to the meeting and carried.

The PRESIDENT remarked that the next business was the appointment of Auditors.

Mr. OAKLEY COLES said that as the accounts were of a somewhat complicated character it was desirable that the present auditors, Messrs. Ashley Gibbings, W. F. Forsyth, and W. Ash, who had acquired some knowledge of the accounts, should be re-elected if they were willing to serve.

The re-election of the auditors was proposed by Mr. Canton, seconded by Mr. James Parkinson, and carried.

The PRESIDENT said he greatly regretted to have to bring forward the next item on the agenda, viz., the resignation of the Hon. Sec. They all knew how very warm he had been in the cause of the Fund from the very commencement, and how hard he had worked in establishing it on its present basis. It would, he feared, be a difficult matter to find anyone who would carry out the duty as ardently as Mr. Coles had done, and he felt sure it would be their wish to offer him their warmest thanks for his past services and their best wishes for his future career.

Mr. J. S. TURNER said he felt sure that all who heard that announcement would hear it with regret. Although he had never been officially connected with the Fund he was probably better able to speak about what Mr. Coles had done for it than almost any one present. Even before the Fund was started he had frequent communications with Mr. Coles on the subject, and he knew that when the Fund was started and Mr. Coles was appointed secretary, that he had worked at the business with the most astonishing energy and resolution. Although the Fund had not succeeded as well as it might, it had certainly succeeded beyond his (the speaker's) expectations, and for that success they were largely indebted to Mr. Oakley Coles. He hoped that the Fund was then sufficiently well established to enable it to go on without his aid. He felt sure that Mr. Coles would always be ready to place the experience which he had gained during his term of office at the disposal of those who would in future carry on the business of the Fund. He thought that all who took an interest in the Fund owed Mr. Coles a vote of thanks such as could be very inadequately expressed in words.

Mr. PARKINSON said that as a member of the Committee, and one who took a good deal of interest in its business, he could endorse every word that Mr. Turner had said.

The PRESIDENT remarked that after what had been said, and the way in which the announcement had been received, he need not put the resolution to the meeting; the general feeling had been plainly indicated. Mr. Coles had been so thoroughly identified with the Fund, that his resignation of his office must cause a feeling of great regret. Mr. Coles had very kindly promised to give his successor the benefit of the experience he had gained, and this would be exceedingly valuable. He need scarcely go through the form of putting the resolution.

The motion was at once carried by acclamation.

Mr. OAKLEY COLES said he thanked them most sincerely for the kind words which had been spoken, returning thanks for which was the most embarrassing piece of work he had had to do in connection with the Fund. He thought he could say from facts within his own knowledge, that the Fund was now firmly established, and that a sufficient amount of interest had been aroused to enable it to go on. His own connection with the dental profession had been of the pleasantest kind, and it would be a source of great satisfaction to him in the future to know that though he left the profession, there were still many men in it with whom he hoped to keep on terms of friendship and intimacy. He would suggest as his successor, one whose name would he felt sure find acceptance at that meeting. In proposing Mr. George Parkinson as the future secretary of the Dental Benevolent Fund, he felt that he was bringing to bear on the interests of the Fund not only the zeal and ability of Mr. George Parkinson, but also the sagacity, knowledge and experience of his father. He felt sure that they could not have the work of the fund in better hands than in those of the Parkinson family. The business was now getting into a fairly routine state; the books were in good order and the accounts systematically arranged, so that there would not be so much labour as there was in the initial stage. He believed the Fund would go on satisfactorily, and he heartily wished it success.

Mr. HUTCHINSON seconded Mr. Parkinson's nomination, and took the opportunity of adding his testimony as to the value of Mr. Coles' services to the Benevolent Fund. Having himself had something to do with the business, he could state that the success which had been attained was wholly due to the untiring efforts of

Mr. Oakley Coles ; he had been the main-spring of the movement, and it was only fair to mention the fact. With regard to Mr. George Parkinson, knowing him well, he felt quite sure that with his own energetic disposition, the wise counsels of his father, and the assistance which Mr. Oakley Coles had kindly promised, the interests of the Fund would not suffer by the change.

The motion was then agreed to.

Dr. WALKER proposed a vote of thanks to the executive of the Fund. Its officers had worked most efficiently and perseveringly, and were fully entitled to the thanks of all those who took an interest in the success of the movement.

The motion was seconded by Mr. FENN COLE, and carried.

A vote of thanks to the President, proposed by Mr. OAKLEY COLES and carried with applause, concluded the proceedings.

ORIGINAL COMMUNICATIONS.

Compulsory Attention to the Teeth of School Children.

By WM. FISHER, L.D.S.Eng., Dundee.*

It has long been my desire that a more watchful care and attention should be given to the teeth of children in this country, especially to those of the working and lower middle classes which make up the bulk of our populations.

During the last eight years I have practised in Dundee, a commercial town on the east coast of Scotland, with a population of 150,000, or thereabout, which is largely composed of those classes. These people generally seek the aid of the dental surgeon for their children only when driven to him by pain. Under these conditions he generally finds their teeth in a very filthy and unkept state ; so much so, as to dishearten him almost in the true conservative treatment of their teeth, because of his inability to cope with the amount of decay and disease presented to him at one time, and the inability on the part of the parents to meet the necessary fees. Hence those classes are thus too often driven into the hands of charlatan practitioners, who have neither education, title, nor conservative sympathies for their treatment, but

* Read at the Annual General Meeting of the Association at Cambridge, August 27th, 1885.

whose sole motive is mercenary. They use humanity as their prey, and delight solely in getting them prepared as soon as possible for their "celebrated artificial teeth." This is a state of matters both to be deprecated and deplored, though not to be wondered at, when we think of the plethora of false instruction self-introduced into the advertisement columns of our daily journals.

This false instruction I would seek to counteract by the aid of cheap lectures similar to our Medical and Surgical Health lectures, which have been so popular of late in many of our provincial towns, which would be the means of disseminating knowledge, truth, and information on the teeth, and which would lead to a cheap literature on the subject to come within reach of the masses of the people, which at present does not exist. The after results of this I would expect to be the lessening of the prevailing ignorance and the growth of a watchful care on the part of the parents to look after the irregularities and defects of their children's teeth, just as readily as they attend at present to the shortcomings in any other part of the body.

It is the total absence of care on the part of the classes mentioned to the teeth of their succeeding generations that induced me to bring this subject before our Association to-day, because I feel that with earlier attention to the teeth of those children we should have the causes of tooth decay very much lessened in the mouths of our people, the results of which would be better furnished mouths, and doubtless, ultimately, a better physique in the rising men and women of our nation. For the attainment of this early care many schemes might be propounded, many of which might appear visionary at first sight, but probably none the less deserving of success. My own opinion is that every child's mouth ought to be examined on its entrance into, and occasionally throughout school life, by a thoroughly competent curriculum qualified dentist; no child to be allowed to commence its studies until every tooth stood an equal chance of existence with every other organ of the child's physical existence.

In contending for this care to the teeth of children I am asking for no more than what is commonly done for other parts, namely, the remedying of disease and defects. I believe no child suffering from scabies, ophthalmia, ringworm, or any of the exanthemata, would find entrance into school an easy matter, neither would I admit any with carious teeth. It may be argued that dental

caries is a non-contagious disease, but we cannot deny that it is enervating, and tending to lower the physique of the life of our country. On the examination of every child's mouth I would have handed to the parents a note of the shortcomings therein—if any—so that they might be corrected. In cases of large families needing aid, the parents of which were in possession of small means, I would have a well-considered provident system of relief adopted for each school, or the schools of that special town. Then, for those who were quite unable to pay, and needing dental aid, I would have this borne by State or parochial relief, just as outdoor medical relief and education are given at present. But these are mere questions of detail. What I emphatically urge before our Association is the necessity of compulsory attention to the teeth of school children of the working and lower middle classes. To show that this compulsory care is necessary, let me draw your attention to the following:—Some time ago I examined the mouths of the boys on board the “Mars,” Training Ship Institution for homeless and destitute boys, in the Firth of Tay. The ship contains usually about 400 boys, principally drawn from the north of a line drawn through the country between Edinburgh and Glasgow, extending as far north as Caithness. In all, they are a strong healthy lot of boys, ranging in age from 10 to 16 years, when they generally leave the ship. As a school—still keeping in mind the classes I am speaking of—I would say there is not one in our country where I would expect to get a better average of good teeth than in the mouths of these boys, as they are in receipt of everything which is possible to develop a strong and burly type of manhood; yet, on a minute examination of every boy's teeth, of which I have the tabulated data, what is the result; only 80 of them had absolutely perfect mouths, leaving on an average 300 of them in need, more or less, of the care of a dental surgeon, and this, you must remember, is a continually shifting population, a new crew being on board nearly every fourth year. In a casual talk with their worthy superintendent, Captain Chas. C. Scott, he informed me that he has had repeatedly boys returned to the ship, when drafted off to gain entrance to the Royal Navy, from the inefficiency of their dental armature. “For a broken tooth he would be rejected,” says their Secretary in his annual report for 1883.

Let me give you another instance. In this case, the Dundee Industrial School for Girls, containing in number 85, ranging in

age from 7 to 16 years, and drawn pretty much from the same sources of life and divisions of the country as the boys of the "Mars." I found this school suffering considerably from tartar, and also injury from the lack of attention during the second dentition, which, from the youthfulness of its inmates, takes place more or less wholly while they are under the care of this institution. Out of the 85 girls I found 15 or 16 with very perfect mouths, leaving 60 or so all requiring watchfulness or treatment; yet out of the 85 there were only 3 or 4 very bad cases. Yet, withal, I consider this school has a high per centage of good teeth, which will not be wondered at when I mention that three of the children were those of gypsies, and many came from the north and east rural districts of Scotland; yet it is in sad need of conservative dental care. I examined, also, a county Board school, but I need not thus illustrate to you facts *ad infinitum* which you are, in the pursuit of your profession, in possession of already. The illustrations I have brought before you are sufficient for my cause. You will mark that I have not taken exceptional cases, but the reverse. Those children I have brought under your notice are drawn from a portion of our country where bone and muscle are supposed to be second to none. They are all clean, well housed, clothed, regularly dieted, and living under the best circumstances for tooth development.

To awaken real enthusiastic zeal for the remediable treatment of all this decay and disease, I should require to tabulate the data of tooth disease in our half-time and poor district Board schools—not to mention our workhouse schools—in order to put this question in all its truth, misery, and naked wretchedness before you. When in London recently, I met one of the boys of the Greenwich Training Ship School for Sons of Seaman belonging to the Royal Navy. The School contains about 1,000 boys. I asked him if the boys suffered much from disease in their teeth, which he answered in the affirmative. I then said, "And have you no attention given to your teeth at the school?" "No, none sir." "And what treatment do you get when your teeth ache?" "*We have them extracted by the ship's surgeon.*"

This is an unsatisfactory state of affairs to be allowed to exist in any such school as the foregoing, where the boys are doubtless expected to adopt the profession of their fathers, and considerable numbers of them must be rejected on seeking entrance to the Royal Navy from inability to pass the following standard of dental excellence:—

N.—Memorandum for the Guidance of Recruiting Officers.

ADMIRALTY, 3d Feb. 1882.

1. (a) The loss of five teeth, absent or unsound in any degree, must in all cases be considered a cause for the rejection of boys.
- (b) If the biting or grinding capacity be seriously impaired by the loss of a less number of teeth than five—for instance, three or four incisors, or three or four molars in the same jaw—the boy must also be considered unfit.
- (c) Beyond the above, no exact rule with respect to defective teeth can be laid down to the examining medical officer, but he should take into account the condition of the teeth generally, and the probability of their lasting.

This dental standard of the Royal Navy for boys of 16 years, or so is not by any means too severe, when one thinks of the likelihood of their being sent on foreign service for cruises of 3, 4, or 5 years; for one observes the necessity for selecting physical types that will endure the tear and wear common to such a life, where the foods are all more or less hard. What the Admiralty ought to exact is that no boy be received with decayed or decaying teeth—*not even one tooth*—as this disease is now as amenable to treatment as any other. Why should they take boys with any decayed teeth, when the weak places may be made strong by fillings? &c. Many healthy, strong boys, with more teeth decayed than would at present disqualify them, would then be eligible for the service, and prove equal to, if not surpass, their present selection.

In a recent paper "On the Periods of Eruption of the Permanent Teeth as a Test of Age," by John Livy, M.D., of Bolton, which appeared in the *British Medical Journal*, Dr. Livy says that for the purpose of his inquiry about 4,000 children's mouths were examined, 2,000 over ten years of age seen at various mills and workshops in Bolton, and 2,000 under ten years of age attending various schools in the town. "The class of children were those of the ordinary working population of Bolton, a town containing over 100,000 inhabitants, and comprised the children of mechanics, cotton operatives, bleachers, small shopkeepers, labourers, &c. During the course of this inquiry, I could not help observing that caries is extremely common, indeed it is quite the exception to find a perfect set of teeth, more especially among children over ten years of age. This is largely due to want of care in the management of the teeth."

This is a valuable testimony to the compulsory attention I am

urging, from the great number of children examined, and from the fact that Dr. Livy was not looking for caries, but had it forced on his attention from the quantity of disease.

Let us look how this state of affairs affects the children in adult life. I will confine myself to one class, namely, that of seamen, because I am able with this class to give statistical facts which, I think, are rather under than over stated, to go to prove the necessity of "Compulsory Attention to the Teeth of School Children." According to the official authority of the Port of Dundee, where at least 800 men are drilled per annum for the Royal Naval Reserve, out of every four seamen who present themselves to join the service, one is rejected, or about one-fourth of the total, from following their profession as they desire, from such causes as "insufficient teeth," "decayed teeth," "bad teeth," &c., every man rejected in all likelihood having lost more than six or seven teeth. Rather a severe hardship to those men. In all probability the majority of these cases would have been amenable to treatment if attended to in early days, when they would likely have learned to take care of these organs and take a healthy interest in keeping them. The financial loss to the seamen unable to join the service is, for first-class men, £10 4s. per annum and other advantages, which necessitates an annual four weeks' drill, supplemented by a pension of £12 per annum on reaching 60 years of age, or earlier if incapacitated, if they have fulfilled 15 or 20 years' service. This to a seaport like Dundee is a considerable loss when we think of the number of men resident in our port during the winter from inability to penetrate the northern latitudes in pursuit of the whale and seal fishing, the Baltic trade, and other fishing industries. About £2,040 per annum is thus lost to the seamen of the district, not including the loss of future pensions, from dental neglect.

In July last, Mr. E. Stanhope asked in the House of Commons under the Education estimates, for a vote of £3,302,772 for England and Wales, and of £786,303 for Scotland, for primary education for 1885, while at the same time there was voted, under the Home Department, £282,915 as this year's estimate for Reformatories and Industrial Schools in Great Britain. If we are able to spend between four and five million sterling per annum on the primary education of the youth of the masses of Great Britain, it surely would only show wisdom on the part of that section of our legislature which is educational to exact that every child on

whom State or parochial relief is being spent should first of all be in possession of a first-rate animal existence, in every way up to type, as far as is possible, so that the State in due time may get its return by being in possession of "a people" with healthy minds in absolutely healthy bodies. That our legislators are not entirely dead to this question is seen in the remarks of Dr. Cameron, M.P. for Glasgow, who contended, at the granting of the aforesaid estimates, on "the importance of giving encouragement to physical education." I believe in physical education, but only after the full perfection of the physical body, and that will not be perfect until the dental armament of our people gets its full share of attention.

Hitherto the class of dental appointments in this country has been that of honorary dental surgeon to this hospital and that dispensary, and the treatment that of continuous extraction, or other rough and ready methods of practice, which to me savours very much of the days when we knew no better, the annual reports of such institutions generally informing us of so many thousand teeth extracted per annum. That this kind of appointment can continue much longer in our country I cannot for one moment entertain with the self-respect of our modern curriculum educated dental practitioner, for whom there is no excuse if he fails in adopting in public appointments just as well as in private practice, all the principles and practice of advanced dental surgery, as now known to us as a profession. Whatever may be the class of dental appointments in the future, I would have them all well remunerated, according to the amount and value of the service rendered, so that no operator might refrain from the faithful performance of his duty, which will bestow the benefits of our education on humanity at large.

This compulsory care to the teeth of school children will necessitate the appointment of dental surgeons to all schools under the Educational and Home Office Departments of our country. This is what I desire to see, as the first step in the right direction for the beginning of a new era in the correct keeping of the teeth of the bulk of our people. With the appointment of dentists to schools, I would ask for instruction to be given to the children, say in the shape of occasional lectures by their dentists—eventually, probably, by their teachers—on such subjects as "The keeping clean of the teeth ; "The necessity for the use of hard foods ;" "The thorough salivation of food ;" "The detec-

tion of decay ;" "The advantages of preventative rather than reparative treatment," &c., &c. The best knowledge in these subjects, with its practical application, I would encourage by prizes to gain results, just as freely as they do in the ordinary educational subjects. All schools are more or less limited numbers, and hence they afford a field for the application of general knowledge in our "science and art" which at present does not exist ; and the dental surgeon would not be subject to that dulling sense of incapacity, brought about through the magnitude of the demands made upon his skill, these being brought into permanent and workable channels which would be amenable to its treatment. This then seems to me to be a great work that lies to our hands as a profession—the practical aspect of which we cannot see the end—if we will only grapple with it and organize a definite method of action to pursue in the lessening of that dental caries which has made its appearance in nearly every inhabitant of all our civilized cities, and is continuing into our successive generations.

I might here draw attention to the recent appointment of a qualified dental surgeon to the North Surrey District Schools for pauper children at Anerley—which fulfils my desire in every way. The schools contain 850 boys and girls between the ages of 3 and 16, who are fed, clothed, educated, and fitted for trades or domestic service, the whole of the expenses being defrayed out of the poor rates. "In this case the dental surgeon attends one morning in each week, the school directors supplying instruments and materials, and giving a salary of £60 a year. Though the schools are under the supervision of the Local Government Board, the whole credit of the appointment is due to the managers of this particular institution, who were urged to it by the recommendation of their medical officer, Mr. H. J. Prangley. This is a decided step in the right direction, and a recognition of the fact that proper attention to the teeth is an important factor in the general health of a community. Apart from the advantages which will be derived by the children, who will now get an amount of attention which was not possible under the old régime, this appointment is of great significance as a sign of a more widely spread appreciation of the benefits to be derived from the educated dental surgeon. A few years ago such an appointment would have been most improbable, and a resolution to make it would at once have been protested against as a piece of useless

extravagance. Now, however, it may, without any exaggeration, be taken as a sign of the times, and we hail it as evidence of an increasing public appreciation of the importance of conservative dental surgery.*

This is but the thin end of the wedge of what I hope to see soon general. We have now within ourselves the foundations of a great profession through our own "compulsory education and registration," but to be great we must have the welfare of humanity at heart, and in its interests be ever building up, extending, and carrying out what we are now so well fitted to do, by the faithful practice of all the principles of advanced dental surgery, to benefit all classes, from the youngest to the oldest, and from the poorest to the richest.

Further Experience with Herbst's Method of Gold Filling by Rotation.

BY STORER BENNETT, F.R.C.S.Eng., L.R.C.P.Lond., L.D.S.Eng.

MR. PRESIDENT AND GENTLEMEN,—In the early part of this year I had the honour of reading a paper before the Odontological Society, in which I endeavoured to describe what was then known of the new method of gold filling by rotation, introduced to the profession by Dr. Herbst of Bremen. This subject has attracted much attention on the Continent, in America and here, but I fear that even now its merits are not fully appreciated. The advantages claimed by Dr. Herbst "that by this means we can obtain a solid hard gold filling with more perfect adaptation of the gold to the walls of the cavity, with greater ease, and a far less expenditure of time than by any other method," are so important, that I venture to bring the subject forward even at the risk of being accused of repeating an oft told tale.

The process as originally described, consisted in packing large, soft, non-cohesive cylinders into four-walled cavities, either naturally existing or produced artificially by means of a matrix. The cavity being loosely filled, a large polished steel burnisher slowly rotating in the burring engine was pressed against the gold, compressing it and leaving a brightly burnished surface, the instrument was then changed for a smaller one "roof-formed" at the end,

* JOURNAL OF THE BRITISH DENTAL ASSOCIATION, Feb., 1885, p. 68.

and which, after being roughened on sand paper, was rapidly rotated against the gold, which was thus greatly more compressed and lost its burnished surface, acquiring instead a dull appearance but becoming highly cohesive. More soft unannealed cylinders were introduced, and the process repeated, first with the large polished burnisher, then with the small roughened one, till the filling was completed, when it could be polished in the usual way.

Various objections occurred to those who experimented with the process, some of which, I am happy to say, have since been overcome. A loss of time occurred through the change of the large burnisher for the small one in the engine, Dr. Herbst therefore devised a set of four straight round hand stoppers, intended to take the place of the large engine burnishers. In using them, soft unannealed cylinders are placed against the floor of the cavity and then compressed with the largest instrument that is convenient, rotation being employed at the same time as compression. As soon as the gold is condensed as much as possible by this means, it is further compressed by the small rough roof-form point (described as No. 5), rapidly rotated in the burring engine. When thoroughly condensed it is tested by a probe, and if any faulty places are discovered they are filled in on the same principle by small cylinders, until the floor is level and solid, the mass in the meantime having become thoroughly cohesive. Another layer of large cylinders is next introduced and similarly treated, first with the hand instrument, then with the smaller rough point in the engine, and finally tested with the probe, the process being repeated until the cavity is full. The last layer of gold may, however, if more convenient, be built on in the ordinary manner with a mallet. By the introduction of these hand instruments a great saving of time is achieved, as the necessity for constantly changing the points in the engine is prevented.

For some few months Dr. Bödecker of New York has employed agate points instead of steel. Writing of them he says, "All necessity for cleaning the burnishers is done away with, and the rotation can be carried to such a high degree of velocity that the gold is made wonderfully cohesive and extremely hard, without causing the slightest reaction of heat—consequently without pain to the patient. . . . It is certainly true that agate breaks very easily, but where its rotation is at a high degree of velocity you need not apply any great pressure. The facility with which

it will condense the gold and adapt it to the walls of the cavity is simply charming." I am happily able to endorse this statement, and when the cavity is large enough to permit their employment, nothing I have met with can equal them for ease, comfort, and rapidity. Hitherto the difficulty has been to get lapidaries to make them sufficiently delicate for the work required, but within the last few days I have received from Messrs. Ash & Sons some blood-stone points made for them in Berlin, which are infinitely superior to anything of the kind I have previously met with, and I commend them to the notice of all who may be employing the rotation method. A great improvement has lately been introduced by Dr. Herbst in his manner of filling interstitial cavities in incisors, by which he requires, as he says, only sufficient space to allow a sandpaper disc to pass between the teeth. His method is to slightly separate the teeth at the time of operation by means of a wooden wedge, &c., or to cut a division with a sandpaper disc; the cavity is then cleared by a fine burr and shaped so that its interior is larger than its entrance. When all is ready for filling, a long thin piece of clock-spring is passed between the teeth from the labial to the lingual surface and bent towards the side opposite to the cavity, being retained in position by the operator's left hand. Thus, if the mesial surface of a left upper central incisor is being treated, the steel spring will be passed between the two centrals and bent towards the right ear, where it will be held by the left hand. This spring now forms an inclined plane leading directly to the faulty spot, and by sliding cylinders along this plane they are directed into the cavity, where they can be manipulated by fine rotating instruments in the manner previously described. By this means all the centrifugal force of the rotating burnisher is expended in driving the gold against the walls of the cavity and the steel spring, none being wasted in forcing the gold merely between the teeth as so easily occurs when small holes in slightly spaced teeth are being filled in the usual manner.

I have used this method of working in several cases lately, and can therefore speak personally as to its merits. The spring may also be employed in filling small proximal cavities in bicuspid and molars where the masticating surface is not involved; they can then be manipulated from the buccal surface.

In conclusion, I beg strongly to urge those who have not yet given the rotation method a careful trial, by all means to do so,

not being disheartened if the first results are less satisfactory than were anticipated, but remembering always how much time and patient practice they willingly expended ere their present facility in manipulation with the older methods was achieved.

A Method of Packing Gold by nearly smooth round-ended Pluggers.

By F. H. BALKWILL, L.D.S.Eng., Plymouth.*

MR. PRESIDENT AND GENTLEMEN,—I hope to have the pleasure of demonstrating before you to-day a method of packing gold which perhaps may be best described as “rolling the gold in packing it into the cavity”—not *rotating* the instrument, but *rolling* it.

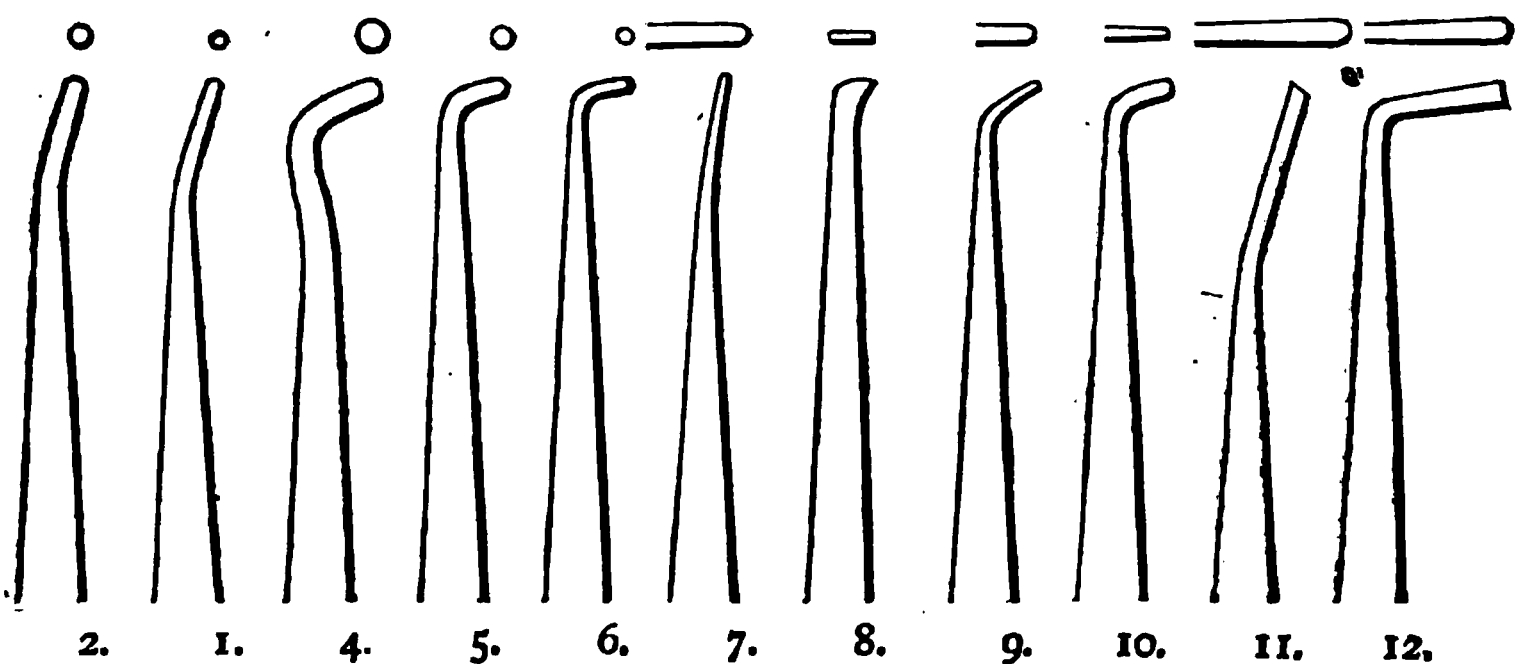
I do not wish it to be inferred that I do not sometimes rotate the instrument, or use a direct thrust in particular positions, but the method to the merits of which I wish to draw attention is that by rolling. The following illustration may convey more clearly the difference between the plans. If I were to take a cannon ball, place it on a bed of sand, and there spin or rotate it on its vertical axis, it would bore its way into the sand with considerable force and friction, these would communicate themselves to the sand by compressing that which lay underneath, and driving out that toward the margin with a more or less centrifugal action. If, however, I roll the ball round upon a concentrically spiral path, it will compress the sand directly underneath with very little friction and scarcely any lateral disturbance. This is as nearly as I can describe it, the motion I wish to advocate with round-ended pluggers.

The principal advantage of these instruments so used, lies in the fact that the force of compression is concentrated upon a single point, which, by rolling, is made to travel rapidly. As there is very little friction produced, it is necessary to anneal the gold, which is used in the form of cylinders. Some nicety is required in doing this, for if the cylinders are too strongly heated they are apt to curl and become refractory; on the other hand, in using large cylinders, if heated too slightly, the outside layers only are rendered cohesive, and the plug will not be so solid as it might be; on the whole, it is better to err on the side of

* Read at the Annual Meeting of the Western Counties Branch, at Hereford, August 24th, 1885.

too little than too much annealing. As suggested by Mr. T. Parson, an improvement in this direction will probably have to be found in an annealing tray by which we shall be able to heat at one time all the gold required for one filling, so as to produce a uniform condition.

Messrs. C. Ash & Sons have made some instruments after patterns which I have given them. These are not, however, all the instruments I use, and are designed for medium and large cavities, but they include the most important shapes. A few moments' grinding will convert any favourite instrument so easily into a round-ended one that it is unnecessary to multiply patterns.



No. 1 does not strictly come within my category. A small cylindrical-shafted point bent at a slight angle, the end cut square, with the edges just taken off. It is used to anchor small gold cylinders in a retaining point or angle of the cavity in commencing.

No. 2. A cylindrical point, same angle as No. 1, the end semi-globular, for upper teeth.

No. 3. Is nearly the same as No. 2 but larger, for large cavities in upper teeth.

Nos. 4, 5, and 6. Three different sizes of cylindrical-shafted points bent nearly at right angles, with semi-globular or partially globular ends; for lower teeth or packing behind angles in cavities.

Nos. 7, 8, 9, and 10. Four flat-shafted points straight and bent at various angles, the ends being rounded on both principal sections for consolidating the margins of fillings, and filling long crevice-shaped cavities.

Nos. 11 and 12. The ends rounded like a semi-cylinder, square shafted and bent at angles for upper and lower teeth respectively : these are for consolidating the gold in interstitial cavities at the cervical margin, which globular ends will not do so well.

The points are not polished but finished with emery paper to a dead surface, which should be occasionally renewed by rolling them on emery paper with some hard surface, as an anvil, underneath.

Several dentists have used smooth points from time to time ; those who have come under my notice or hearsay are : Mr. Thomas Rogers, of Hanover Square, London, who used smooth points with soft gold more than thirty years ago. Mr. T. Parson, of Clifton, uses them, I believe, with foil. Mr. King, of Newark, uses smooth-ended gold points. Dr. St. George Elliott, I have been told, uses smooth points, but I do not know his method.

In the July number of the *Cosmos*, Dr. Abbott, of New York, is mentioned as having demonstrated with "smooth round-ended pluggers." His method, with engravings of his instruments, is more fully described in the *Independent Practitioner*, for August, by which it appears that it consists in rotating the instrument, being the same as the Herbst, only done by hand, the gold not being annealed.

Some years ago Mr. Fletcher, of Warrington, took great interest in testing gold fillings, and at last stated that he found that round-ended instruments made a tight filling. I do not think he mentioned whether these were smooth or serrated, and he seemed from this time to lose interest in gold filling.

HOSPITAL REPORTS AND CASES IN PRACTICE.

A Casualty in Tooth-Extraction.

By DANIEL BROWNING, L.D.S.Eng.

IN May of this year, a man aged 19 consulted me about a right upper first molar, crown much decayed. I advised its extraction. The decay having penetrated a considerable depth, exposing to view the canals in the fangs, I considered the elevator would be the safest instrument to use, and proceeded to extract, the patient being well under the influence of gas. The tooth gave great resistance, and was only slightly loose by the time the man had partially recovered. On a second administration

of gas, while proceeding with the same instrument to complete the operation, the patient's head slid a little to the left side of the rest, necessitating the use of my left arm to forcibly keep the head in position, and thereby causing the withdrawal of the thumb and first finger from protecting the alveolar plates.

At the moment that this support was taken away from the alveolus, the molar came away, and with it the sound first bicuspid and containing alveoli. There was no disease of bone of the jaw apparent, but some exostoses on the fangs of the teeth accounted for the resistance experienced.

I record this case from the double motive that it may be sometimes useful to publish our failures, and with the hope of eliciting from others their experience in the same direction.

REVIEWS AND NOTICES OF BOOKS.

THE BRITISH PHARMACOPŒIA, 1885 ; published under the direction of the General Medical Council.

The revised edition of the British Pharmacopœia, which has lately made its appearance, is from our point of view chiefly remarkable for the number of remedies in common use in the dental profession which in it for the first time receive official sanction, such, for instance, as Oil of Eucalyptus, Iodoform, Thymol, Menthol, Cocaine, and Gelsimium. There are, however, more than a hundred other additions, and a few unimportant omissions. The alterations also are not numerous or very important, though the solutions of arsenic, morphia (now called morphine), and strychnine are slightly increased in strength. A good deal of criticism has been bestowed on points of detail, but on the whole it seems to be allowed that the editors have done their work carefully and satisfactorily.

DIAGNOSTIK DER ZAHNKRANKHEITEN und der durch Zahnleiden bedingten Kiefererkrankungen, &c., von Dr. JOSEPH ARKOVY, Docent d. Zahnheilkunde, a.d. Universität in Budapest. FERDINAND ENKE, Stuttgart, 1885, pp. 400, large 8vo.

[On the Diagnosis of Diseases of the Teeth and of Diseases of the Jaws caused by dental lesions, with an appendix on the different

tial diagnosis of tooth, eye, and ear diseases, by Dr. Joseph Arkövy, Professor of Dental Surgery in the University of Budapest.]

This book shows evidence of a somewhat rare combination of patient industry and of capacity for original observation. We cannot say that we are prepared to accept all Dr. Arkövy's conclusions without independent confirmation, but the work is one which must be taken into account by all future writers on Diseases of the Teeth. We are glad to hear that there is a prospect of its appearing in an English form, the more so since it cannot be said that Dr. Arkövy's style is always as clear as a non-German mind could wish it to be. We will therefore defer any detailed criticism for the present, feeling that we shall run less risk of doing the author any unintentional injustice when we have the translation before us.

SULLA CARIE DENTALE e SUA CURA, di LUIGI RIBOLLA-NICODEMI ; Palermo, 1885 : pp. 130.

[On Dental Caries and Its Treatment, by L. Ribolla-Nicodemi.]

This is a book of a very different character from the above. The author makes no pretence of originality, but gives a very fair resumé of the opinions of the various authorities, German, French, English and American, merely adding a few illustrative cases of his own. We should scarcely have noticed the work but for the statement made by the author, that it is the first systematic treatise on Dental Caries which has yet appeared in the Italian language. If this be the case, he has certainly done his country a service. Of the seventy illustrations we cannot say much, but then the book is published at the very low price of five *lira*, equivalent to four shillings English.

PRAKTISCHE DARSTELLUNG DER ZAHNERSATZKUNDE, von PHILIPP DETZNER ; C. Ash & Sons, Berlin, 1885 : pp. 300.

[A Practical Treatise on Mechanical Dentistry, by Philip Detzner.]

This again is only an average specimen of book-making. It will no doubt be useful to the students of the new Dental Institute of Berlin, to whom it is dedicated, but might easily have been made more so. With the exception, perhaps, of the chapter

on obturators, we do not find anything in the book which would justify us in commending it to English readers. We may add that the author does not agree with Mr. Spence Bate as regards the advantages of excision *versus* extraction of stumps, though the practice of excising seems to be a common one in Germany. But possibly the practice may be, as it is with a certain class of practitioners in this country, excision and nothing more; the plate being fitted over foul, blackened stumps, which have simply been cut down and filed smooth, without any attempt at filling the root canals or otherwise protecting them against disintegration. That the results of this practice are not satisfactory is well known, even to most of those who follow it, but it is otherwise where the patient can have the benefit of proper professional skill and experience.

MINOR NOTICES AND CRITICAL ABSTRACTS.

Atmospheric Pressure in the Retention of Entire Dentures.

By W. B. AMES, D.D.S., Chicago, Ill.

THE principle of atmospheric pressure is definite enough, and easy of understanding and of application to solids of definite form or to liquids, but when applied to bodies of variable form and resistance much attention to detail is called for. As in any branch of our art, it is not the adherence to general principles as much as the attention to detail and conditions that brings success.

In looking over the literature at command, I find that very little has been written on the subject of late years, and what has been written at any time has been of an indefinite nature. The instruction in the various text books is extremely vague as to the application of the principle of atmospheric pressure to the retention of artificial dentures. They speak of its being applied in cavity plates and contact plates, saying nothing about the conditions on which the success of each method depends. For instance, Richardson says, "where practicable, it is better to make a central chamber, the size and location of which will depend upon the condition of the soft parts," without specifying the condition.

Much has been said of the advantages and injurious effects of this central chamber, and its usefulness and uselessness much discussed. About the year 1862, a sort of controversy on this sub-

ject was indulged in by some of the lights of the profession. Dr. John Allen published a thoroughly scientific article, in which he claimed that the only office of the central chamber is to prevent the rocking of the plate upon the hard parts of the centre of the palate. Dr. Pease, in a very extensive discussion, urges the necessity of the cavity over the centre of the palate, the amount of pressure derived being proportional to the size of this cavity. Dr. Ambler Tees, in a paper read before the Illinois State Society, makes a statement to the effect that he has in several instances swaged two plates for the same mouth, one with a chamber and one without, and found the pressure so much stronger in the former that in every case he discarded the latter. Now in this method of Dr. Tees, we have no statement to show that he made his plain plate of different size, shape, or relations from his cavity plate. Other cases have been cited where mouths have been satisfactorily fitted with *plain* plates, after various failures with plates depending upon the suction of a central cavity had been met with, but the citer never describes the relations of his plate to the tissues beneath and about it, which would indicate that a stroke of luck was to be credited with the results. In these cases I hold that something more than the adhesion of contact or capillary attraction must have been secured, either rationally or otherwise, and that this *something* is a powerful pressure of the atmosphere. This pressure I am able to obtain with plates devoid of any central cavity or air chamber, by a method which I have employed for sufficient time to be satisfied that it is applicable to any case where there is firm tissue over any part of the palate or alveolar ridge.

Various methods of trimming the impression and model to relieve and equalise pressure have been given from time to time, the best of which I consider to be that of Dr. Holbrook, of Kenosha, Wisconsin, which method he patented, and divulged to the profession for value received only, and under promise of secrecy. This method, as exposed by the inventor, seemed most applicable to lower dentures, his instructions for the treatment of upper cases not being sufficient to cover all requirements for best results in the majority of cases.

His main points were to trim the impression where the jaw is hard, and the model where the jaw is soft, over such parts as are to be covered by the plate. Thus, in most cases, he would pare away the *impression* to correspond with the firm surface at the

central region of the palate, and cut a groove across the *model*, anterior to the line of attachment of the soft palate. This groove, which would mark the posterior termination of the plate, would be deepest at each side, and shallow directly over the median line. This is the substance of his instruction, the aim being to avoid rocking and to obtain perfect contact at the posterior edge.

In most cases the variable resistance of the tissues anterior to the soft palate is the condition that is fatal to best results by this method. In a few cases the tissues are sufficiently lax over the posterior portion of the hard palate for this groove to be made of the same depth entirely across, but generally the laxity begins at the margin of the bone, especially at the median line, so that in most cases to have the edge of the plate displace the soft tissues uniformly, it is necessary to extend the plate a little posterior to this margin.

My course of procedure for upper dentures is to obtain a good impression of the jaw with any material whatever, being especially careful to have the impression extend a little beyond the margin of the hard palate, well up beneath the lip and cheeks and around the maxillary tuberosities. The material for the impression should be of such a consistency as will compress all soft or lax parts, or the model obtained from it should be pared down at the location of these parts. Then should be ascertained and marked out upon the model the exact location of the points where the laxity of the soft tissue of the palate commences. Posterior to this line an obtuse groove should be made across the model, extending from the region behind one tuberosity to that opposite. This groove should terminate at each side at a point where the edge of the plate will be well covered by the buccal tissues, thus leaving no possibility of the entrance of air beneath the plate. The depth of the groove must depend upon the laxity of the parts. It should be of the depth to which it is desired the plate shall displace the tissues.

By constructing a plate over this model, allowing it to extend posteriorly into the groove and well up beneath the lip and cheeks, it will not be apt to exert any perceptible influence on the surface of the mouth when there is no force applied to displace it, but immediately upon its displacement from contact with any portion of the surface a vacuum is produced, from the fact that all edges of the plate were slightly displacing lax tissues that will follow the edge downward, and atmospheric pressure be obtained over all

firm parts of the jaw. When removal is desired the force can be broken by raising the lip, thus admitting air beneath the plate.*

The ideal atmospheric pressure plate is one which offers the maximum resistance to displacement with the minimum of bad results from traction upon the tissues. By the above method a plain plate can be made to embody in a greater degree all of the advantages of a cavity plate, without the bad effects of the cavity.

A few patients cannot tolerate a plate extending upon or near the soft palate, on account of the nausea produced. In such cases the groove can be formed as far forward as is necessary, and the posterior edge of the plate made to consist of soft rubber, which from its flexibility will give an accommodating contact, to answer the same purpose as that of the yielding soft parts with the other form of plate.

This principle might be applied to an occasional lower denture, where the ridge is broad and firm, but such cases are rare.

Plates of any material can be made after this method. It is especially suited for continuous gum work, and for other metallic plates when made with rubber or celluloid attachment, all edges being made thick and rounded to prevent irritation of the soft tissues. It is also consistent to retain healthy roots in the jaw, as they do not interfere, and if situated at the four angles will improve the masticating capacity of the apparatus.—*Independent Practitioner*.

On the Etiology and Pathology of the So-Called "Dentist's Leg."

BY GEORGE JOHNSON, M.D., F.R.S.

PROFESSOR OF CLINICAL MEDICINE, AND SENIOR PHYSICIAN TO KING'S
COLLEGE HOSPITAL.

AT the meeting of the Odontological Society in June, 1884, Mr. Oakley Coles read an interesting paper on the "Maintenance of Health amongst the Practitioners of Dental Surgery."† The reading of the paper was followed by an instructive discussion, in the course of which mention was made of the pain in the back

* Many of our readers will remember a short but instructive paper read by Mr. Bowman Macleod at our Annual General Meeting at Liverpool in 1882, and published in the Journal for that year (p. 567), entitled, "When and Where Models may be Scraped for the purpose of Ensuring a Better Fit," in which very similar advice was given.

† Transactions of the Odontological Society of Great Britain, vol. xvi., No. 8, new series.

and legs resulting from over-fatigue in muscles which are engaged in maintaining the body for a long period in one constrained position. One speaker, Mr. Dennant of Brighton, said he had himself "suffered from what their medical friends were learning to call the 'dentist's leg.'" About two years since, the pain became unbearable after standing three or four hours, resembling very much the application of scalding water to the outer part of the thigh in the region of the external cutaneous nerve. It seemed to be due to nervous exhaustion from the undue strain thrown upon the part. Medical friends and common sense suggested rest as the remedy, and this he secured by means of the Lyons stool. He had used this for about two years with great benefit, and could now get through a day's work with comparative comfort.

Some time since I had my attention directed to this subject in consequence of having been consulted by a dentist, about thirty-five years of age, who described to me a sensation of numbness in one thigh, which he feared might be a precursor of paralysis. I soon, however, relieved him of his anxiety by giving him what I have no doubt is the true explanation of the perverted sensation. Our every-day experience teaches us that over-strain and fatigue may be direct causes of pain in the muscles concerned; but, besides this, the long-continued rigid contraction of the muscles which are engaged in maintaining such a fixed position as the operating dentist often has to assume must greatly impede the circulation, not only through the muscles, but also through the integuments. As the alternate contraction and relaxation of the muscles—in walking, for instance—assists and quickens the circulation, so the state of fixed and rigid contraction must obviously impede and retard the circulation, by exerting a continuous pressure upon the bloodvessels, and more especially upon the soft and easily compressed veins. The impeded circulation affects not only the muscles, but also the skin and subcutaneous tissues, and the nerves which supply the different tissues; and one result of a defective circulation through the nerves is to cause various perverted sensations—such as numbness, a sensation of "pins and needles," or a painful feeling of heat and scalding. The immediate cause, then, of the painful sensations experienced and so graphically described by Mr. Dennant appears to be, not as he suggests, "nervous exhaustion," but perverted nerve function, directly due to a mechanical impediment to the circulation through the rigidly contracted

muscles and their associated nerves. It is probable, too, that direct compression of the nerves by the firmly contracted muscles may have some influence in the causation of the perverted sensations referred to the cutaneous terminations of the nerves.

I have often been consulted by men and women beyond middle age who have been alarmed by a feeling of numbness, or "pins and needles" in the extremities. In these cases the defective circulation, which is the direct cause of the perverted sensation, is often the result of an enfeebled condition of the heart, with or without excessive general obesity, and often with more or less general emphysema of the lungs.

To return to the "dentist's leg." The obvious means of prevention and of cure consist in rest for the overstrained limb, or such a frequent change in position as is equivalent to a certain amount of rest. Standing in one position is notoriously more fatiguing than walking, and for the obvious reason that while in standing one set of muscles is in a constant state of active contraction, the circulation through them being thereby retarded and enfeebled, walking involves alternate contraction and relaxation of the muscles, with an invigorated and quickened circulation.

More than one speaker during the discussion referred to the benefit to be derived from some form of active muscular exercise after the day's work. It is probable, too, that systematic friction and massage of the affected limb would be beneficial.—*Lancet*.

Dental Surgery in its Relation to Medical Practice.

By WILLIAM ELLIOTT, L.D.S.I.

ASSISTANT DENTAL SURGEON TO THE DENTAL HOSPITAL, BIRMINGHAM.

SPECIALISM is the inevitable outcome of the extension of the medical art and science. The practice of dental surgery may be regarded as in a very strict sense a specialty, for it requires an amount of skill and knowledge which can only be acquired by a special training. A dental student, although his practice will be confined *de jure* to the tooth tissues, must necessarily possess a general knowledge of all other parts of the body, a sufficient knowledge of general medicine and surgery, besides an intimate acquaintance with his special studies, and a practical application of the details and methods of dental mechanism; this, I may say, costs him as much, both in time and in money, as is required to take a surgical licence.

The science of Dental Surgery, therefore, cannot be considered as unimportant, for it embraces the consideration of such subjects as heredity and ethnology, the influence of climate, of civilization, of diet and of hygiene, the effects of mental development; but more especially it treats of a part of the body of almost life-long and constant use in more than one of the important functions of life, exercising in its physiological and pathological conditions an extraordinary influence on other and even remote parts.

There is a large class of diseases whose pathology and treatment lie upon the border-land between dental and medical practice, the results of which may extend into and involve those functions that are beyond a doubt in the practice of either. I am aware that it is dangerous and unfortunate to live upon a border-land, for we may remember how, in the days of lectures we were bewildered by one lecturer courteously refraining from touching a border topic, while his colleague upon the other border showed an equal degree of delicacy; and this, I take it, may account for the fact that in some cases a symptom is treated while the exciting cause, for a time at any rate, is overlooked.

It is the function of dental surgeons to treat the diseases *belonging to the teeth*, and not those *arising from the teeth*, and I think I am right in saying that we have enough to do to perfect our own methods within these bounds.

Speaking generally, interference with the general nutrition of the body may be caused by the mechanical interference with digestion resulting from loss or tenderness of the teeth; while local evidence of reflex malnutrition is seen in such cases as blanching of the hair, or ulceration of the external auditory meatus. Dysuria and leucorrhœa likewise may be results of reflex irritation; and one writer states that hip joint disease occurring in young children is due to the eruption of the first permanent molar.

Another line of contact between dental surgery and medical practice is afforded by diseases which stand to morbid conditions of the teeth in the relation rather of causes than effects: thus we may notice inherited syphilis leading to notched and pegged incisors, first pointed out by my former teacher, Mr. Hutchinson; rickets giving rise to imperfectly calcified teeth; gout associated with teeth that wear evenly down. Fevers, phthisis, stomatitis, and pregnancy, all have their effects on the nutrition and surroundings of the teeth.

Irritation from the teeth may produce motor movements, as is commonly seen by contraction of muscles which close the mouth; or in strabismus during teething, or, in rare cases, by contraction of the uterus; or the irritation may cause an intermittent spasm or twitching frequently ceasing upon the removal of a tooth. The opposite condition, paralysis, is frequent during teething.

I propose chiefly to review the connection between the teeth and those reflex irritations associated with the various periods of dentition, with pregnancy, with the ear, the eye; and lastly, when associated with inherited syphilis.

The enamel is the main and most important part of the tooth as far as its preservation is concerned. Nearly all writers agree as to the cause of defective enamel, viz., arrested development. These defects may originate during an early formative period of the tissue, or they may be due to a defect in the formative organ.

At an early period the enamel organ envelops the dentine germ in the form of a hood. It is composed of three layers, an external and an internal epithelial layer, and a stellate layer. The external and internal layers are formed of columnar cells of malpighian layers of epithelium. The cells of the internal layer elongate and become much longer than those composing the external layer. Epithelial cells generally are liable to undergo a retrogressive change, and death of one or more of these cells may take place. If cells die in the internal layer of the enamel organ corresponding rods will be in defect. In this way we may account for the "pits" seen upon the enamel surface, due to a death of one or more cells forming the enamel rods, and independent of systemic disturbance.

We also find fissures or grooves in the coronal surfaces of molars and bicuspid, which we may regard as the result of a rupture of the enamel organ separating the rods. At the period of development when this rupture takes place the pulp has assumed the form of the future tooth, but is smaller. Small caps of dentine are formed over the points of the cusps; the enamel organ has undergone a change in the form of the cells, and a change is taking place from protoplasm to formed material ready for the lime salts. This change renders the cells stiff and unyielding, and commences directly over the points of the cusps, passing gradually from these points as centres towards the centre

of the grinding surface and thence down towards the sides of the crown. The growth of the dentine germ stretches the investing enamel organ, and the points over the cusps being fixed, the strain comes directly on the softest and most yielding portion between the cusps, where fissures are to be found. These fissures being most common on teeth with prominent cusps point to the fact that the enamel organ is very subject to rupture.

Dentition may be divided into five successive periods :—

1. Period of milk teeth—the eruption of 20 temporary teeth, from 6 to 32 months.
2. Eruption of four first permanent molars, from 5 to 6 years.
3. Replacement of 20 milk teeth by an equal number of permanent ones, from 7 to 12 years.
4. Eruption of 4 second permanent molars, from 12 to 13 years.
5. Eruption of the wisdom teeth.

There is scarcely a symptom which an infant presents but has been attributed to the teeth. One child is said to cut its teeth with bronchitis, another with diarrhoea, and a third with eczema ; but being a perfectly natural process no evil seems to result where no influences are existing to produce complications ; but there are cases where children cut their teeth one after the other with no proper periods of rest between. It most frequently occurs in those cases where there is a retardation of the eruption of the first teeth. Before dentition commences a child's mouth is less moist even than that of an adult, for while supplied with fluid food no salivary action is required. As dentition, however, approaches we find an excitement of the buccal and salivary glands to an overflow of the secretion, which seems to be more acid from the alkaline constituents being taken up in advancing the development of the teeth.

We frequently find that an aching tooth will disturb the stomach. The divisions of the 5th are allied through more than one branch with the gastric nerves, so that not only a frontal headache may accompany an irritated gastric mucous membrane, but *vice versa*. A painful tooth in adults will often check the flow from the follicles of the stomach, and from this we may infer that the reflex irritation produced by one or more erupting teeth may be enough to suspend the gastric secretion almost entirely. The fact of the teeth being a differentiation of the mucous membrane continuous with

the alimentary canal, seems to me to account for a great deal of the painful eruption attending them where an improper diet is given.

Now, we have differences of opinion as to the advisability of lancing the gums. That it gives relief at times is certain, but the popular belief that it is to let the tooth come through is really absurd. Can a soft mucous membrane impede a developing tooth? and how is it that the sharp-edged incisors and not the molars most require this assistance. There is one question, however, that deserves consideration, and is frequently overlooked. What effect does the lancet have upon the crown in its process of formation? This is important if we consider the extreme fragility of the enamel covering the crown enclosed in the sac, and also that an incision of this kind might occasion inflammation of the sac. The old way the nurses have of substituting the finger nail for the lancet avoids danger in this respect, and also prevents the possibility of injuring the germ of the permanent tooth, which is placed on the inner side of the milk tooth.

Passing on, in the fifth and sixth year are erupted the four first molars—the four largest teeth. These take the longest time in their development (from third month *in utero* to fifth year), nearly six years. These teeth, from this slow development, suffer in their organisation from all the complications of early infancy, and are, generally speaking, the first to come and the first to go. After their eruption the more serious complications of teething seem to be lessened until the eruption of the wisdom teeth. At this period and subsequent thereto there is frequently associated a neuralgic condition.

Now, we frequently see children from five to twelve years of age with teeth in a very carious state; very often soon after this there assumes a neuralgic condition, indicated by general pain in the teeth and their associated nerves. Why should such a condition be seen in children at this early age, a condition like that seen in those adults labouring under great mental strain? It seems to point to perverted dental nutrition, a result of the premature development of the functions of the brain from educational requirements.

This perverted nutrition does not allow the tooth to resist outward circumstances; in fact it has less vitality, and very soon there are lesions, causing local irritation and congestion, that are increased by the taking of food, by the sleeping posture, and by warmth, causing general defective health.

It has been stated that in nine out of ten cases the organ of pain is in the mouth, and therefore, under any circumstances besides a visual examination, each tooth should be percussed especially, these connected with the division of the nerve most affected. A general neuralgic pain, not at all localised, is characteristic of exostoses ; in its later stage only the pain becomes more local, and in time the tooth becomes tender. There are also cases where pain is referred to a sound tooth, when neither percussion nor change of temperature reveal abnormal sensitiveness. In such it is frequently found that the cause of irritation is secondary dentine pressing upon the fibrillæ of the pulp.

Again, we often find in neuralgia (frequently during pregnancy) that a tooth becomes tender after each attack, and yet is not the exciting cause. We also sometimes find associated some skin eruption, and the development of the teeth being from dermal tissue, explains to some extent the action of the teeth as the exciting cause. Pain from a wisdom tooth does not pass the median line. If the upper teeth are the exciting cause, we may find the supra and infra orbital nerves, the eye, the brow, and a spot near the vertex on the side of the affected teeth involved. If the lower teeth (especially molars) the ear is involved, and frequently the cervical and brachial plexuses.

Toothache during pregnancy may show itself either (1) as a purely neuralgic condition affecting previously healthy teeth, due to reflex uterine irritation ; or (2) accompanied by disease of the hard structure of the teeth, or a rapid softening and disintegration of the surface of the tooth generally. The enamel has either disappeared or become softened in texture, the teeth are often very sensitive and conscious of every thermal change, very often this general softening occurs without actual caries, so that the tooth becomes sensitive, loosened, and of so much annoyance as to necessitate removal. On removing a tooth in this state the periosteum may be found scanty and anæmic ; the hard structure may be easily cut, and the pulp appears in a fatty condition, quite distinguishable from a healthy or inflamed pulp ; the cut portion of the tooth has a soft greasy surface, presenting such an appearance as might be called "fatty degeneration." The peculiar state in which we find the tissues of pregnant women, *post mortem*, will, to some extent, explain the tooth tissue being so affected.

We frequently find otalgia or otitis caused by a carious tooth or, perhaps, during dentition, for any morbid impression upon the

otic ganglion may have an influence upon the ear. A considerable portion of the blood supply of the membrana tympani is derived from an artery that leaves the internal carotid in the carotid canal, and thence by a very short course to its destination. Thus closely connected with the main artery this tympanic branch of the internal carotid possesses a very favourable means for a rapid increase of blood supply. Now the nervi vasorum, constituting the carotid plexus at this part of its course, come principally from the otic ganglion. On the other hand, the inferior dental nerve (this affection being almost always caused by a lower tooth) supplying the carious tooth communicates with the otic ganglion likewise. We have in this way a direct channel of nerve communication (through the ganglion) between the tooth and tympanum. The first effect of the irritation is one of increased inhibition in the vessels, causing a temporary diminution in their calibre. Subsequently the vessels become dilated, congestion follows, causing tension of the sensitive tissue, and pain. If irritation be prolonged effusion follows, which may pass to suppuration, and so constitute a veritable otorrhœa. In some cases of deafness there seems also to be an increased action of the tensor tympani.

The effect that the teeth may have upon the eye has been so fully given in a paper recently read before the Odontological Society, by Mr. Henry Power, that I will only quote his words. "In conclusion," he says, "I think it may be laid down as a maxim to be generally observed, that in all cases of threatening glaucoma, especially when associated with ciliary neurosis, and obscure pains in the temples and maxillary orbital regions; in all cases of mydriasis and probably of myosis originating without apparent cause; in all cases of sudden paralysis of either orbital muscles, or of loss of sensation in the absence of cerebral symptoms; in all cases of phlyctenular disease of conjunctiva; in all cases of ulcers of cornea resisting ordinary treatment; in all cases of sudden failure of accommodation, especially in young children; and finally, in cases of exophthalmia, the condition of the teeth should be examined, and if faulty conditions present themselves, these should be at once rectified, and then one at least of the probable causes of these diseases will be removed."

In the diagnosis of hereditary syphilis an examination of the teeth is undoubtedly of great importance. I think we may regard syphilitic lesions of the teeth as most constant, for in many cases

the disease has been diagnosed solely through dental malformations.

Syphilis shows itself in two ways upon the teeth:—(1) By a retardation of eruption or evolution, this being only a more localised expression of the general fact of the retardation of development among persons so affected. (2) By an arrest of development and modification of structure. This may give rise to lesions, which we may divide into four groups.

1. Erosions.
2. Microdontism, or a reduction below the average size—a kind of general atrophy or infantinism.
3. Amorphism, or certain teeth lose more or less their characteristic type.
4. Vulnerability; these teeth are more readily affected by external influences. They seem to possess less vitality, due to malformation, and may be characterised by their rapid and early decay.

Speaking generally we may say that the tooth affected by syphilis is a tooth pathologically constituted, which carries in itself the elements of disorganisation. According to Magitot "it is a tooth composed of parts deprived of homogeneity and equilibrium in the relative proportions of their anatomical and chemical elements." They are, therefore, very much subject to traumatic lesions, such as wearing away, fracture, &c. The lunar-shaped notch of Hutchinson being caused in this way, as is likewise the "short tooth" type of first molars. Syphilitic teeth are, therefore, defective in general development, in size, and in shape.

On the other hand the chief characteristic of "mercurial" teeth (caused by some kind of stomatitis or exanthema) is the absence, more or less, of the enamel. The four first molars being the teeth that are almost always affected, next follow the centrals, laterals, and canines. The chief feature being the non-development of the enamel, there being *no general atrophy* and very little malformation, they are more generally observed, therefore, than syphilitic teeth.

I have in these remarks touched upon those diseases involved in medical practice, in order to show how closely dental surgery is related thereto. Any case of doubtful diagnosis lying upon the borders of dental practice will be all the better for the opinion of one who is practising this speciality, and I think, therefore, that a dental surgeon should be attached to the staff of every hospital

where you will admit his experience must at times be of some value. In our practice we have only to do with the teeth as we find them, and with the results of those diseases affecting them that are largely dependent upon medical practice for preventive treatment.—*Birmingham Medical Review*.

OBITUARY NOTICE.

Mr. George Buchanan, of Glasgow.

WE notice with much regret the death on the 2nd inst. of Mr. George Buchanan, of Glasgow, at the age of 64. Mr. Buchanan was well known to, and much respected by, most of the senior members of the profession, whilst his name, at least, was familiar to the juniors as the donor for many years of an annual prize at the Dental Hospital of London. He began his dental career as a pupil of the late Mr. Roberts of Edinburgh, then came to London and was for some time assistant to the late Mr. Arnold Rogers; he afterwards went to Paris in the same capacity, and finally settled down in practice on his own account at Glasgow. Mr. Buchanan was one of the original members of the Odontological Society, of which he was a Vice-President from 1875 to 1877; he was also a past president of the Odonto-Chirurgical Society of Scotland. He was, we believe, the first to make use of chloroform in Glasgow after its introduction as an anæsthetic by Sir James Simpson, the leading surgeons of the city assembling to witness its administration. His health had been failing for several years past, the immediate cause of death being congestion of the lungs.

APPOINTMENTS.

MR. NEWLAND PEDLEY, F.R.C.S. and L.D.S.Eng., has been appointed Assistant Dental Surgeon to Guy's Hospital.

MR. W. SCOTT THOMSON, M.R.C.S. and L.D.S.Eng., has been appointed Assistant Dental Surgeon to the National Dental Hospital, *vice* Mr. D. Curnock resigned.

MR. W. R. ACKLAND, L.D.S.Eng., has been appointed Demonstrator at the Dental Hospital of London, *vice* W. Hern resigned.

MR. ALFRED H. THOMAS, L.D.S. Edin., has been appointed Dental Surgeon to the Birkenhead Eye and Ear Hospital.

ANNOTATIONS.

WE heartily congratulate the Central Counties Branch on the prosperous condition in which it finds itself at the end of the first year of its existence. When we remember the passive indifference and active opposition with which the efforts of its founders were at first received, it must be admitted that a membership of fifty is most satisfactory, whilst the success of the recent meeting must have been highly gratifying to those who laboured so hard for its establishment.

WITH our increasing number of Branches, and consequently larger demands upon our space, we find it necessary to greatly curtail, or omit altogether, the reports of the dinners which are a constant, and it must be added a very useful, feature of their meetings. After-dinner oratory is not usually of a high order, still good speakers are to be met with occasionally, and amongst these must be reckoned Professor Gamgee, whose speech at the dinner of the Central Counties Branch we should have been glad to report had circumstances permitted. The professor spoke at some length on Dental Education, and on Dentistry as a branch of Medicine and Surgery, and expressed a wish that qualified dentists might be admitted as members of the Birmingham Medical Institute.

Those who have had much experience of the meetings of scientific societies must have noticed how much of chance there is in the way in which papers are received. At one time an essay containing good debatable matter and over the preparation of which much trouble has been taken, is received with apparent indifference, whilst at another an inferior production will excite a lively discussion. An important point seems to be the presence of one or two individuals, ready of speech, to set an example. We regret that several of the papers read at Cambridge elicited no discussion, whilst last year at Edinburgh nearly every paper was thus honoured. We can, however, assure the authors that the silence with which their remarks were received was not due to any want of appreciation, but partly no doubt to a feeling that there was a good deal of work to be got through, and partly to evil chance; since, as we have said, the same result not unfrequently occurs

when no reason can be assigned, and under circumstances where it is both unlooked for and inconvenient.

WE hear that the photographs taken by Mr. Blandy at Downing College, Cambridge, have turned out very satisfactorily. The first group, in particular, is very good; it contains Mr. John Tomes, Sir Edwin Saunders, Dr. Smith, and Messrs. Spence Bate, James Parkinson, Richard White, F. Canton, Oakley Coles, R. Rogers, R. W. White, and Alfred Jones. The second group consists of about fifty ladies and gentlemen, and is as successful as large groups usually are. Mr. Blandy offers to supply copies of either of these photographs (cabinet size) on receipt of postal order for five shillings; the proceeds to go to the Benevolent Fund. The second group will no doubt be, to those who took part in it, an interesting memento of the Cambridge meeting; but the first will, we believe, be valued by a much larger number of our members, since it is extremely doubtful whether it will ever again be possible to get together so many well-known and respected members of the profession.

THE first meeting of the Odontological Society will take place at 40, Leicester Square, on Monday, November 2nd, at 8 p.m., when a paper will be read by Mr. F. H. Balkwill, of Plymouth, on "a Method of mounting Porcelain Crowns on pulpless Molar Stumps." Mr. W. Hern will also read a short paper on "a Method of treating Pulpless Teeth," and casual communications have been promised by Messrs. S. J. Hutchinson, Storer Bennett, and others. Mr. Eve's paper on "Tumours of the Jaw," which was to have been read at this meeting, has been postponed till December.

NEW Zealand papers lately to hand give welcome testimony of the good effects of a more genial climate on the health of our much missed member, Mr. Alfred Coleman, for we find him delivering a course of Ambulance Lectures to crowded audiences at Nelson. The report speaks of the lecturer's "proficiency in the art of putting things clearly," of his "fund of dry humour," &c. Evidently Mr. Coleman is himself again, and the lectures seem to have been a great success.

WE mentioned a few months ago that the Glasgow Dental Hospital had received notice to quit the quarters it had occupied for six years in Anderson's College, the rooms being required for other purposes, and that a movement was on foot for the establishment of a new hospital. We are glad to learn that these efforts have been completely successful. Suitable premises were secured in George Square, and a well-arranged hospital and school are now in active operation. We feel sure that this work cannot have been carried out in so short a time without great energy, and probably considerable sacrifices, on the part of those who took part in it, and we heartily congratulate the leaders of the profession in Glasgow on their achievement.

THE Manchester Odontological Society held its first meeting on the 29th ult., Mr. G. W. Smith, M.R.C.S., President, in the chair; twenty members were present. The following is the list of officers:—*President*, Mr. George W. Smith; *Vice-Presidents*, Messrs. J. Hooton and H. Planck; *Hon. Sec.*, Dr. Betts; *Treasurer*, Dr. Parsons Shaw; *Council*, Messrs. L. Dreschfeld, P. Headridge, J. Taylor, and J. H. Molloy. The meetings will be continued monthly.

THE number of new entries, up to the 12th inst., at the Dental Hospital of London, was twenty-two, and at the National Dental Hospital seven for the full curriculum and seven partial.

THE Annual Dinner of the Past and Present Students of the National Dental Hospital, will take place at the Holborn Restaurant, on Friday, November 20th, Mr. Oakley Coles in the chair. We hear also that the Subscription Dances at the Marlborough Rooms, which were started last year by way of experiment for the benefit of the Hospital, are to be resumed this winter. Whether they produced much or little profit to the institution, they were at all events very pleasant gatherings, and we have no doubt that this second series will be at least as successful as the first.

ANOTHER case of gastrotomy for the removal of an artificial denture is reported from Dresden, the operator being Professor Crédé. The patient was a healthy young man, aged twenty-three, who had swallowed a vulcanite plate supporting six upper teeth, with clasp, about 1½ inch in diameter. Four days elapsed before

he consulted a surgeon, but though a minute description of the operation is given (we quote from a report furnished by Dr. Jenkins, of Dresden, and published in the *Independent Practitioner*), we are told nothing about the man's condition during this time or just previous to the operation. However, the fact that the plate was lodged in the stomach was established somehow, and an operation decided on. A transverse incision, four or five inches long, was made through the abdominal wall over the pyloric end of the stomach, and it was found that the plate was lodged in this situation, as had been expected. This portion of the stomach was drawn out and an opening made just large enough to admit of the extraction of the plate. The incisions were then carefully sewn up, and the patient was discharged convalescent in a fortnight. It is almost needless to add that the strictest antiseptic precautions were used.

A SECOND case of teeth swallowing was reported in the *British Medical Journal* a week or two back by Mr. Sympton, of Lincoln, but the plate was, happily, removed from the œsophagus by means of forceps. This plate was composed of dental alloy, measured an inch and a-half by three quarters of an inch, carried five teeth, and "projecting from its extremities were five sharp hooks."

ARE any of our readers anxious to earn £75? If so they have only to forward to the editor of the *Monatsschrift des Vereins Deutscher Zahnkünstler*, on or before April 1st next,—surely an appropriate day,—a preparation of gold which will work like amalgam. The gold must work like silver amalgam; it must be easily worked, and must readily adapt itself to inequalities; must have the appearance of gold, and must retain its colour; must be capable of polish; and must form a dense hard plug, not subject to after-contraction. It must also be new and capable of being patented, and the lucky winner must be prepared to hand over all claims connected with his discovery to the liberal donor on receipt of 1,500 marks. The prize is "open to all." Is it to be allowed to go begging?

THE above is No. 12 of a series of prize competitions inaugurated by the above-mentioned journal. The others, of which the value ranges from twenty to fifty marks, are offered for essays on

BRITISH DENTAL ASSOCIATION.

various subjects, such as "Impression-taking and Articulation on the "Regulation of Teeth," on "Gold-work," on "Jaw Palate Reparation," "Suction-chambers," &c.; the essay is to become the property of the author. The idea, though quite new, is not a bad one, but when we come to No. 10 we must confess to being a little astonished.

THE statement of work done at the Dental Hospital of London during the month of September, shows a total of 5,351 cases treated. Of these 1,721 were extractions, 456 being children; there were 131 gold, and 648 other stoppings, 85 cases of periodontitis, and 540 miscellaneous and advice cases.

At the National Dental Hospital during the same month 1,695 cases were treated, including 1,695 extractions, 481 of these being children, 107 gold, and 536 other stoppings, 201 regulation and 507 miscellaneous and advice cases. Considering that it was vacation time, these returns show a very large amount of work.

CORRESPONDENCE.

A Practical Hint.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—Your readers may be interested to know of a useful substitute for the ordinary slab on which Oxyphosphate stoppings are made. It is a two-inch cubic block of glass with bevelled edges, usually as a letter weight. Its advantages are obvious, always a firm support for your block and six sides for mixing instead of two. To clean and rub surfaces of two blocks together, using a little fine sand and

GEORGE PEI

17, *Railway Approach, London Bridge, S.E.*

TO CORRESPONDENTS:—

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to the Editor at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &c.

HOSPITALS.	DENTAL SURGEONS.		ASSIST. DENTAL SURGEONS.	DAY AND HOUR OF ATTENDANCE.		ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewbank ; Mr. Paterson	Mr. Mackrell; Mr. Ackery ...	Daily at 9 a.m.	Mr. Mills.
Charing Cross	Mr. Fairbank ...	...	...	Monday, Wednesday & Friday, 9 a.m.	...
St. George's	Mr. Winterbottom ...	...	...	Tuesday, 9 a.m....	...
Guy's	Mr. Henry Moon ...	...	Mr. F. N. Pedley ...	Tuesday and Thursday, 12.30 noon	...
King's College	Mr. S. H. Cartwright ...	...	...	Tuesday and Friday, 10 a.m. ...	...
The London	Mr. Ashley Barrett ...	...	...	Tuesday, 9 a.m....	...
St. Mary's ...	Mr. Howard Hayward...	...	...	Wednesday and Saturday, 9.30 a.m...	...
Middlesex ...	Mr. Bennett ...	...	Mr. C. Rogers	—	...
St. Thomas's	Mr. Ranger ...	...	Mr. Chas. Truman	Tuesday, ...	...
University College...	Mr. Hutchinson...	...	...	Wednesday, 9.30 a.m....	...
Westminster	Dr. Walker ...	...	Mr. Smale ...	Wednesday and Saturday, 9.15 a.m. ...	...
London Dental	Mr. David Hepburn ...	...	Mr. W. Hern...	Monday, 9 a.m....	...
"	Mr. R. H. Woodhouse...	...	Mr. Arthur S. Underwood	Tuesday, 9 a.m....	...	
"	Mr. Gregson ...	...	Mr. Claude Rogers ...	Wednesday, 9 a.m.	...
"	Mr. Storer Bennett	...	Mr. George Parkinson	Thursday, 9 a.m.	...	
"	Mr. Henry Moon	...	Mr. Lawrence Read ...	Friday, 9 a.m. ...	...
"	Mr. F. Canton ...	...	Mr. Truman ...	Saturday, 9 a.m.	...
National Dental	Mr. Henri Weiss	...	Mr. Willoughby Weiss	Monday, 9 a.m....	...	Mr. Bailey.
"	Mr. Alfred Smith	...	Mr. Giles Bradshaw ...	Tuesday, 9 a.m....	...	Mr. Bird.
"	Mr. G. J. Williams	...	Mr. Marcus Davis ...	Wednesday, 9 a.m.	...	Mr. Mills.
"	Mr. A. F. Canton	...	Mr. H. G. Read	Thursday, 9 a.m.	...	Mr. Braine.
"	Mr. T. Gaddes	Mr. Scott Thomson ...	Friday, 9 a.m.	Mr. Bird.
"	Mr. Harry Rose...	...	Mr. W. R. Humby ...	Saturday, 9 a.m.	...	Mr. Bailey.
						Mr. Glassington.
						Mr. Tyrrell.
						Mr. Hewitt.
						Mr. Winslow.
						Mr. Tyrrell.
						Mr. Winslow.

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, October 16th, at 5.30 p.m.; Committee of Management, October 19th, at 5 p.m.; Medical Committee, October 15th, 5 p.m.
Odontological Society.—Council, Monday, November 2nd, at 7 p.m.; General Meeting, at 8 p.m.
British Dental Association.—Representative Board, Saturday, December 5th, at 3 p.m.; Publishing Committee, October 29th, at 5.30 p.m.

Members who have changed their address during the year, or who have obtained fresh qualifications or appointments, are requested to send notice of the same to the Secretary at 40, Leicester Square, in order that they may be correctly described in the List of Members which will be published at the end of the year.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

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A
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No. II.

NOVEMBER 14, 1885.

VOL. VI.

Professional Reticence.

SOME years ago a patient consulted the late Mr. C. H. Moore, with reference to an obscure injury to the ankle joint which had resulted in the displacement of one or more of the tarsal bones; and that careful surgeon, after making a minute and painstaking examination and satisfying himself of the exact nature of the injury, formed the opinion that nothing could be done, but that the inconvenience must be borne. The patient, hoping for better things, then sought the advice of a surgeon in the eyes of the public yet more distinguished, who, barely glancing at his foot and not troubling to form any very exact diagnosis, said—"Well, my man, you have injured your foot and you must just put up with it." Whereupon the sufferer went

his way proclaiming aloud to his friends, that the one saw what was the matter at a glance, but that the other had taken three quarters of an hour to do so, and so must be very far inferior in acumen.

This anecdote will bring to the mind of not a few dentists the feelings of disgust which they have experienced when, after devoting such time and care to an operation as perhaps to make it quite unremunerative, their patient has expressed discontent at the time consumed, and has remarked that Mr. So and So has often filled much larger cavities for him without taking such a long time, and without hurting him half so much, and has further expressed in no dubious terms his preference for the slip slop work which that model practitioner had been in the habit of doing for him. And as it is very difficult to go on day after day doing our very best for patients by whom the extra care bestowed is little if at all appreciated, there is a tendency towards the unconscious adoption of a lower standard which it requires much determination and conscientiousness to effectually resist. And the remedy is one not quite easy of application. It is obvious that the only thing which will bring about in this respect a real lightening of the dentist's task is the more complete enlightenment of the patients upon the nature of that which is being done for them ; but nevertheless it is a little difficult to impart this information without appearing to extol one's own work, a thing the least semblance of which is utterly hateful to any properly constituted mind. We so thoroughly despise the quack who imposes upon the gullible section of the public, and a very large section it is, by loud-voiced assertions of the wonderful things he can do, that, in the fear of never so remotely reminding our patients of such discreditable folk, we often refrain from imparting to them any knowledge whatever of what we are about, and so pile up trouble for ourselves in the future.

Every practitioner of the smallest experience must be very fully aware how easy it is, by comparison, to operate for an intelligent patient, and how hard it is to do anything like our best for a stupid one; it has been well observed that no one should ever pass judgment, even in his own heart, upon the work which has been done in a particular mouth, until he has first operated for that patient himself.

We would inculcate upon our readers, therefore, the advisability of taking every opportunity of instructing their patients,—so far at least as may be necessary in order to give them an intelligent interest in the work,—in the nature of that which it is proposed to do, in its aims and in its possible shortcomings, and so placing them in the position of being able to co-operate in the overcoming of difficulties or at least to sympathise with them. This neglect in informing the recipient of our services of the nature of that which is in hand is, we fancy, very general amongst dentists, although we are sure that the little time needed to do something in the direction indicated, would be most amply and with interest repaid by the greater facility with which future operations would be performed. And this suggests the consideration of another question upon which some of our readers will, perhaps, differ from us, namely, to what extent, if to any, the patient should be allowed to select between lines of treatment.

In medical matters it is rarely possible that the patient can be placed in such a position as to form an opinion worth the smallest consideration, but with respect to the simpler problems offered in dental surgery this is not so fully the case, and it may often be possible to place the matter before the patient in such a manner that he may form his own opinion as to the course he would prefer. For example, it may be a question whether a particular cavity should be filled with gold or with amalgam; in the opinion

of the dentist gold would be the better, yet it would involve a lengthy operation, a larger fee, and more endurance on the part of the patient, with at the end of it all some degree of uncertainty as to the durability of the result. In such a case the relative merits of the two methods may be placed in such a light that the patient is, we think, quite entitled to choose for himself, and should not be coerced into submission to the opinion of his adviser; whilst on the other hand the latter should of course never be over-persuaded into acting in a manner contrary to his own distinctly held conviction.

ASSOCIATION INTELLIGENCE.

The Representative Board.

A MEETING of the Representative Board will take place at 40, Leicester Square, on Saturday, the 5th prox. at 3 p.m.

Midland Branch.

A MEETING of members and associates of this Branch was held at the Rooms of the Young Men's Christian Association, Sheffield, on the afternoon of Saturday, the 24th ult. Amongst those present were—Messrs. Henry Blandy, of Nottingham (President); S. Wormald, of Stockport (Treasurer); W. H. Waite, of Liverpool (Secretary); L. Matheson and E. H. Williams, of Manchester; A. M. Matthews and A. A. Matthews, of Bradford; G. Brunton, of Leeds; T. Murphy, of Bolton; I. Renshaw, of Rochdale; T. Mahonie, J. L. Pike, C. Stokes, L. H. Drabble, F. Dale, R. C. H. Drabble, J. Harrison, and F. Harrison, of Sheffield; J. C. Storey, of Hull; &c.

In opening the proceedings the President remarked that he had no programme, but would be glad to receive communications from any gentleman present.

Dr. WAITE exhibited some of the plastic filling materials prepared by Dr. J. Foster Flagg, of Philadelphia; also some of the instruments and appliances for using the same. He desired to bear personal testimony to the superior and thoroughly genuine

character of every material prepared by Dr. Flagg, and after several years' constant experience, he could honestly declare that these materials (alloys, gutta percha, and osteo-plastics) were the best he knew. Having been intimately acquainted with Dr. Flagg and his work for upwards of twenty years, he had the greatest pleasure in stating that he knew no man who had laboured so hard and so devotedly for the diffusion of practical knowledge in connexion with operative dentistry as Dr. Flagg had done. His zeal and generosity were only equalled by the conscientiousness that characterised all his efforts. The book on "Plastics and Plastic Filling," written by Dr. Flagg, was one of the most valuable works in connection with dental literature, and nobody who read that book could fail to realise the thorough mastery of every detail possessed by the writer. He (Dr. Waite) would call special attention to Dr. Flagg's "Submarine" Alloy, and "Contour Amalgam Alloy." And as these were obtainable either through the Dental Manufacturing Company, or direct from Dr. Flagg himself,* at extremely reasonable rates, he would strongly recommend them in preference to all imitations, inasmuch as every ounce of material sold by Dr. Flagg was actually tested and examined by him before it leaves his hands. "Handmade Gutta Percha" also was a very valuable article when manipulated according to Dr. Flagg's instructions. "Temporary Stopping," the formula for which would be found in the book, was so handy and serviceable that no dentist should be without it. He wished to draw special attention to the methods of mixing alloys by weight, and rubbing in a ground glass mortar, as directed by Dr. Flagg; also to "wafering," and many other points of great value, which were all fully explained in the book. Should any gentleman desire further information in regard to these things, he (Dr. Waite) would have much pleasure in affording it, as far as he could. He was glad to acknowledge his great indebtedness to Dr. Flagg (as an old student and a frequent correspondent) for very much of what he really understood about operative dentistry, and he knew there were hundreds of practitioners in the States and elsewhere who would cheerfully make a similar confession.

Mr. T. MURPHY, of Bolton, then read notes of a case in which an enchondroma was removed from the upper jaw of a man sixty years of age. The patient was first seen by Mr. Murphy ten

* Dr. Flagg's address is 106, North Eleventh Street, Philadelphia, U.S.

or twelve years ago. His articulation was then thick and guttural. On examining his mouth, a tumour, about as large round as a florin, was seen occupying the right side of the hard palate, and moulded to it, apparently by the action of the tongue. The stumps of the first and second bicuspid, and the first and second molars were present, and the patient stated that the growth had commenced about eight years before between the last-mentioned teeth, being attached by a pedicle about the thickness of a goose-quill. It was quite painless. Mr. Murphy strongly advised the removal of the growth, telling the patient that it would continue to increase in size, and would eventually be a great inconvenience to him. But the patient would not consent, and Mr. Murphy saw nothing more of him until May of the present year, when a hale and hearty-looking old gentleman applied to him for advice about a denture. Mr. Murphy noticed that his speech was very indistinct, and, on examining his mouth, found the identical tumour which he had seen twelve years before, but greatly increased in size. He had been wearing a small plate, carrying four upper incisors, which had been attached to the canines; but one of these teeth had come out, and the other was loose. Mr. Murphy removed the loose canine—all the other teeth in the upper jaw had been lost—and told the patient that before he could have a denture fitted, it would be necessary to remove the tumour. To this he now consented, and he was told to come again in a week for this purpose. At the next visit Mr. Murphy, with the assistance of his son, Mr. H. A. Murphy, L.R.C.P. & S., Edin., proceeded to remove the tumour. A ligature was tied round the pedicle, and the latter cut across as close to the gum as possible. The division of the pedicle was not very easy, for it was composed of cartilage mixed with bony matter, and rather free hæmorrhage followed, which was, however, arrested by a compress. When he next returned he reported that there had been no return of the bleeding, and all that could be seen in the mouth was a healthy granulating sore about the size of a threepenny piece. Mr. Murphy took impressions of the mouth, and within a week put in a complete upper and partial lower denture in vulcanite, with which the patient was much pleased. Four months after the operation, which was performed on June 3rd, Mr. Murphy wrote to enquire how the patient was getting on, and received a reply from him, dated October 21st, saying that he had not been so well for many years as he had been since the teeth had been

fitted, and that there had been no signs of any recurrence of the tumour. Mr. Murphy added that he had looked through the various text-books, but had found very little information respecting this form of tumour as affecting the mouth. The account given by Mr. Heath, in his book on "Injuries and Diseases of the Jaws," was the most exhaustive; but he did not mention a case in which so large a tumour had grown from a pedicle. The occurrence of such growths in the oral cavity was therefore of some rarity, and it was on this account that he had brought the case under their notice.

Mr. Murphy exhibited the tumour itself, and also models of the patient's mouth.

Dr. WAITE spoke of a somewhat similar tumour which he had seen some years ago, and explained the characteristic differences between enchondroma and osteo-sarcoma, and suggested that if a section of the tumour was examined, and its precise nature ascertained, it would be more easy to foretell the probable results of the operation. As he understood, enchondroma was generally innocent, while osteo-sarcoma was very likely to exhibit malignant tendencies.

Mr. F. HARRISON endorsed the remarks of the previous speaker, and offered to examine a section of the tumour under the microscope, in order that a more certain prognosis might be arrived at if possible.

Mr. F. HARRISON then read notes of a case of Exostosis, and a discussion ensued, in which Messrs. L. Matheson, A. A. Matthews, T. Murphy, E. H. Williams, J. Storey, and others took part.

The PRESIDENT exhibited copies of the photographs taken at Cambridge, which were much admired.

The SECRETARY then read a letter received from Mr. W. M. Fisher, of Dundee, calling attention to the subject of his paper on "Compulsory Attention to the Teeth of School Children." It was, he thought, much to be regretted that this paper was not discussed at Cambridge. The subject was of immense importance, and should be kept constantly before the public mind until a public opinion was created in favour of early and thorough attention to the children's teeth.

The PRESIDENT concurred fully as to the great importance of the subject, but did not quite see how the thing was to be done. Many of them were (as he was) already devoting a considerable amount of time to gratuitous work, and if all Board schools and

training institutions were to be dealt with as suggested by Mr. Fisher the duties would be enormous.

Mr. STOREY (Hull) supported the view taken by the President, stating that he had two hundred children under his care, each of whom he examined and operated for once every three months. This absorbed a very large amount of time.

Other members spoke to the same effect, and the meeting then closed with the customary vote of thanks to those who had contributed so many items of interest.

The Annual General Meeting of the Association.

Friday, August 28th.

(Continued from p. 585.)

THE members reassembled in the Debating Hall of the Union Society at two p.m., Mr. R. White, President, in the chair, and the reading of papers was resumed.

Mr. ARTHUR UNDERWOOD read a paper on "Some points of Interest in Dental Anatomy," and Dr. WALKER followed with one on "Capping *versus* Extraction of the Pulp," neither of which gave rise to any discussion.

Mr. R. W. WHITE (Norwich) then read a paper on "First Permanent Molars," and afterwards handed round a number of models, which, he remarked, might possibly prove more interesting than the paper itself. He first showed a series belonging to one family, all the members of which had naturally very good teeth. In the case of the eldest daughter, Mr. White removed the four first permanent molars some years ago; she was now thirty-five years of age, and the rest of her teeth were intact and free from decay. The second member of the family declined to have these teeth removed. His teeth were equally good, but there were now stoppings in the upper jaw between the first and second bicuspid, between the first bicuspid and the canine, and between the canine and lateral; whilst in the lower jaw several teeth were gone, and the patient was complaining of indigestion. The next, now a surgeon, had perfect teeth till about a year ago; as in the other members of the family, his teeth were exceptionally good and of fair size; but the jaws were rather small, and although there was no actual irregularity, the pressure of the teeth against one another was extreme. In this case the

first permanent molars were not removed ; the wisdom teeth were now in process of eruption, and Mr. White had extracted two. The upper bicuspid were now showing signs of decay, and there was decay between the wisdom teeth and second molars on each side. Seeing the results in these cases, and having to deal with a younger sister, Mr. White thought it wise to remove the four molars, though at that time all were sound. She was now twenty years of age, and all her teeth remained sound ; the spaces had not closed up, but the wisdom teeth had not yet shown themselves ; when they appeared, he hoped that the spaces would be lost.

The next models he would bring forward, were those of two sisters having equally good teeth. In the first case the patient was seventeen-and-a-half years of age, he had removed the four first molars ; three of the four wisdom teeth were just protruding through the gum, and he hoped that when they were fully erupted the spaces would disappear. The patient had not a stopped tooth in her mouth. In the next case he had been very anxious when the patient, aged fifteen, came under his care a year or two ago to remove the six-year-old molars, but she objected. The result had been protrusion of the front teeth and considerable damage to the first bicuspid from pressure ; he therefore removed these teeth. Had the molars been removed, a great deal of trouble might have been avoided. In another case shewn, he had been very anxious to remove the first permanent molars, but was not permitted ; the results were considerable irregularity and over-crowding, and ultimately he removed the second bicuspid on one side of the upper jaw, and the first on the other, these being badly decayed, together with two sound lower bicuspid. The next to which he would call attention was a peculiar case. The upper front teeth shut down quite over the lower, and were driven into the lower gums, so as to cause great discomfort to the patient. He desired to extract the four first molars, but the friends would not allow this to be done. After a time an expansion plate was fitted, and the arch was forced out somewhat, but the teeth soon returned to their old positions, and several, including the bicuspid on each side, became carious. He had many other models to show, some shewing the advantages of extraction, others the effects which followed where patients or their relatives had declined to have the six-year-old molars removed, but he should prefer to elicit the opinion of the members

generally on the points to which he had called attention, viz., the advisability of extracting these teeth, and at what period with regard to the state of the neighbouring teeth, or the age of the patient.

The Chairman invited discussion, remarking that the paper dealt with one of the most difficult problems to be met with in dental practice.

Professor STACK (Dublin), said he had been a little disappointed that no discussion had followed some of the previous papers, but the subject just treated of was so important and so interesting that he could not refrain from trespassing on the time of the meeting for a few minutes. The greater number of the cases referred to by Mr. White, were cases in which sound teeth were extracted, and he (Dr. Stack) thought that a distinction should be drawn between cases in which the teeth which it was proposed to extract were naturally good, and in which other members of the family had sound teeth, and those in which no such goodness was to be expected. But, apart from this, he would say at once that he was entirely averse to the extraction of the six-year-old molars, as Mr. White advised, even though they might show a small amount of decay; he considered that what was a small amount of decay in a six-year-old molar was a very large amount of decay, relatively speaking, in a bicuspid. In examining a six-year-old molar, or a bicuspid, at the age of 13 or 14, it must be remembered that the six-year-old molar, if in a state of comparative soundness, had run the gauntlet of a most dangerous age, when the mouth was constantly filled with sweets and all kinds of rubbish, and if it had come out only slightly wounded, it should rather be kept in reserve as an old veteran, than that the guardianship of the mouth should be entrusted to a raw recruit, like the tooth which would come up next to it. It must also be remembered with regard to bicuspid, that when once they were attacked with decay, they were the most difficult of all teeth to treat,—at least he believed that this was generally admitted to be the case. It was quite possible to treat and fill the molar and render it useful for practical purposes, even though the pulp be exposed, but it was very seldom possible to do as much with a bicuspid. He thought therefore that the future before a molar was a more important one than that before a bicuspid.

He thought the six-year-old molars, always supposing they were

not badly decayed, should not be removed before the age of twelve years. The function of these teeth seemed to be to serve as a stay and support at the back of the mouth, while the teeth in front of them were forming in line, and if they were removed before the teeth in front had come into place, it was more likely that the proper eruption of the latter would be retarded than that space would be made for them by the extraction of the molars. But he would not sacrifice this tooth, even though slightly decayed, on the chance of the twelve-year-old molars, or the wisdom teeth coming up behind and turning out of a better or equally good constitution. To gain space when there were symptoms of overcrowding, he would extract the six-year-old molars only if badly decayed, but otherwise, if there was overcrowding in the front of the mouth and the canines had not room to come down, he would far sooner sacrifice a bicuspid, on the ground that, in his opinion, these teeth were constitutionally frailer and harder to keep and to preserve satisfactorily than the first permanent molars. In the case of a crowded jaw with good teeth in it, he did not think it mattered very much which you took out, but he differed altogether from Mr. White in his disposition to condemn the first permanent molars, without being able to form an opinion that the bicuspids and second molars were going to be sound. If a child happened to be attacked with any of the eruptive fevers, or subjected to any depressing causes during the period of life at which the four second permanent molars were being developed, these teeth would very probably come up frail and bad, and would be no substitute at all for the six-year-old molars which had been extracted. He entirely agreed with the principles on which Mr. White's practice was founded, but with his method of carrying out these principles, if he had understood him aright, he did not agree.

Mr. GORDON JONES (London), thought that the overcrowding to which Mr. White had referred might be much more easily obviated, without sacrificing good teeth, if parents could be induced to bring their children for advice at an earlier age: a great deal might then be done by preserving the temporary teeth, the occasional application of an expansion plate, &c., to gain a wider arch for the eruption of the permanent teeth. If the importance of early attention to the teeth were more generally appreciated, dental practitioners would not have coming under their notice so many cases of crowded mouths.

Mr. J. S. CRAPPER (Hanley), remarked that according to his experience of regulation cases, it was impossible to lay down any rule to which there would not be exceptions. No doubt there was some truth in what Dr. Stack had said about preserving the six-year-old molars. If they were fairly good and if the removal of a bicuspid would answer the purpose of correcting any irregularity which might exist, or appeared likely to occur, then by all means adopt that course; but cases were met with, not unfrequently, in which this would not prove satisfactory. As an exceptional case he would instance one which had come under his care about twelve months since, that of a youth whose mouth was very much overcrowded. The canines were standing out, almost at right angles, the first upper molar was badly decayed on the right side, and the second molar on the left. Mr. Crapper removed the six-year-old molar on the right side and the twelve-year-old on the other, together with the right and left laterals and two supernumerary teeth, and the result was that the spaces closed up, and the teeth became quite regular without the use of any apparatus whatever. If a case presents itself just when nature is about to perform some change, as when the wisdom teeth are about to erupt, alterations could be effected in the mouth, without mechanical regulation, which were simply astonishing.

Dr. WALKER said that having had a large public school under his care for eighteen years, he could not allow Mr. White's paper to pass without a word. He was in the habit of freely extracting teeth that showed no signs of decay, and he did not scruple to extract the six-year-old molars when he had assured himself that the bicuspid showed a fair amount of vitality. He believed in the good effects of extraction for the relief of overcrowding without waiting for evidence of decay, and he had had the most favourable opportunities of watching the results of this method of practice.

Dr. BOGUE said he should like to ask Mr. White a question with reference to the case he showed, in which the upper incisors impinged upon the lower gum. He spoke of extraction there, and he (Dr. Bogue) would be glad to know what teeth he would have extracted in that case, and what the result would have been.

Mr. R. W. WHITE replied that at the time when the patient first came under his care, almost the only teeth which touched were the four first permanent molars; the front teeth did not articulate

and could not be got to articulate, the only pressure being between the four molars. His idea was to remove these teeth and thus obtain room to draw back those in front, to which an examination of the models did not show any obstacle.

Dr. BOGUE said he was obliged to Mr. White for his explanation, because he had had within the past year two cases precisely similar to that shown by Mr. White, and they had taxed him severely. At the same time, he should decidedly take exception to Mr. White's proposed mode of treatment, which, in his own hands at all events, he should fully expect to prove a failure. He agreed with Dr. Stack on the one hand, and he found but little to differ from in Mr. White's paper on the other. It was a saying amongst themselves in America, that a man who could successfully stop bicuspid teeth was a good dentist. He doubted if it was always possible to preserve these teeth, but if at the age of thirteen or fourteen the six-year-old molars were in fair condition, it was possible to preserve them. Mr. White had asked at what age the first permanent molars should be extracted. He would reply, not before twelve, and that in many cases it would be advisable to wait a little longer before deciding on their removal. The six-year molar was almost invariably a larger tooth than the twelve-year, and it did not do to count too certainly on the appearance of the wisdom teeth. Some of the saddest cases he had seen had been due to the failure of the wisdom teeth to come through, causing the upper teeth to shut right down over the lower. Lastly, he would call attention to a statement—originated, he thought, by Dr. Jack, of Philadelphia—that if the four first permanent molars are to be taken out, the lower ones should be taken out a year before the upper, because of the greater density of the lower jaw. Another point to which Mr. White had not alluded was this. If we bear in mind the arch of the upper jaw, looking at it from the central incisor to the wisdom tooth, it would be found that the six-year-old molar was the lowest point of the curve, and if this point was removed it was never recovered—the two jaws came necessarily nearer together than they were before. Hence he inclined to Dr. Stack's opinion that, except in cases of decay, it was better to remove the bicuspids.

Dr. GEO. CUNNINGHAM said he had a model to bring forward which he thought showed very clearly the advisability of symmetrical extraction of the six-year-old molars. In this case the upper molar had been extracted on the left side, and the lower

molar on the right. The patient had weak teeth, and if the model was examined it would be found that the amount of decay was greatest, and the fillings required were most numerous, just where the teeth had not been extracted. This matter of symmetrical extraction, whether of molars or bicuspid, was a question of great importance, and one on which he had formed a very strong opinion ; not, of course, entirely from his own experience, for that had been too short as yet, but from cases he had seen, corroborated by his own experience. He did not know of any operation which would produce greater results in a shorter time than this, even though a practitioner should adopt an exaggerated view of the question and extract almost every six-year-old molar he met with, provided only that they were taken out at the right time. And they must be all taken out together. He believed that in taking out one tooth a man was doing an injury to himself and his patient. A single tooth ought never to be extracted, for the occlusion and articulation, being normal, would be most seriously affected ; he must take out at least a pair, and in the majority of cases the four. He invited their attention to the model, in which he himself took the greater interest because he knew the operator ; he was a man for whom he had the greatest respect as a teacher, but he believed that on this question of the extraction of the six-year-old molars he was quite in the wrong.

Mr. WHITE, in reply, said that the specimen showed by Dr. Cunningham had its counterpart amongst those on the table. The object he had in view in his short paper was to show that at no certain age, according to his experience, could such and such a tooth be removed, but that when signs of crowding showed themselves, *i.e.*, when the space left between the lateral and the six-year-old molar was clearly insufficient for the two bicuspid and the canine, the molars should be removed. So that instead of laying down a fixed law as to the age at which these teeth should be extracted, he would say, directly the third tooth begins to show that it is one for which there is not room, at once remove the six-year-old molar. If this was done oftener he felt sure there would not be so many cases of interstitial decay between the bicuspid, which was, as Dr. Stack had remarked, very difficult to treat. He believed it was not the difficulty of the operation, but the cracking and starring produced by pressure which caused these cases to be so unsatisfactory. The decay might be thoroughly excavated, but the cracks remained, not only in the enamel but in the dentine

and after the tooth had been carefully stopped the trouble began afresh and the operation had to be repeated. There was one point which appeared to have been overlooked by the speakers, viz., that if space was wanted, a much larger space was gained by the extraction of the first permanent molar than by the removal of a bicuspid ; and if a tooth had to be sacrificed it was quite as well to make sure of getting the amount of space required. Again he did not see that as a rule much was gained by the eruption of the wisdom teeth ; on the contrary these teeth often produced as much trouble as did the second bicuspid or the canines. The removal of the canine or the bicuspid would not give sufficient room for the wisdom tooth to come through, whilst, with reference to Dr. Bogue's remarks on the consequences of imperfect eruption of these teeth, he could only say that he had never seen a case in which the six-year-old molars had been removed in which there were not also fairly good wisdom teeth. This might seem a strong statement to make, but it was a point to which he had paid special attention, and he gave it as the result of careful observation during sixteen years of practice. He would add that he began practice rather impressed by a prejudice against the removal of the six-year-old molars. The wave of conservative dentistry, just setting in at that time, led him to desire most thoroughly to preserve these teeth and to stop them, and he feared that a good many of his patients had suffered thereby. However, as the result of the experience thus gained, he had now come round to what he believed to be the sounder practice, viz., in all cases of crowding of the second bicuspid or canines, to remove the six-year-old molars as soon as the third tooth—whichever it may be in the upper jaw, invariably the second bicuspid in the lower—of these three begins to show itself, and decay between the bicuspid would never be met with.

The meeting was then adjourned until next (Saturday) morning at 10 a.m.

Saturday, August 29th.

The members re-assembled for the last time in the Debating Hall of the Union Society at ten o'clock on Saturday, August 29th, Mr. RICHARD WHITE, of Norwich, President, in the chair, when Mr. FRANK HARRISON, of Sheffield, read a paper on "Antiseptics in Dental Surgery."

The President having invited discussion, Mr. SPENCE BATE said he understood Mr. Harrison to say that micrococci lived as well in the absence of air as in its presence, but this statement was so thoroughly contrary to all the observations hitherto made that he felt very unwilling to accept it. The result of the most careful experiments went to prove that if these organisms be entirely deprived of air they cease to exist or at all events to grow. The fact that they multiplied in the teeth was not at all opposed to this fact, since air, or free oxygen, was to be found everywhere throughout the body. Experiments to prove that air was not necessary for the growth of these organisms required to be carried out with an almost inconceivable amount of delicacy; the slightest imperfection of a cork or carelessness in manipulation would admit air and then the growth of micro-organisms would follow.

With regard to antiseptics, he believed that Koch had found bichloride of mercury the most satisfactory substance for this purpose. He (Mr. Bate) had used it occasionally, and had not found any ill effects from it, though some of his medical friends had an idea that it was dangerous. No doubt it was very difficult to obtain at the same time a good reliable antiseptic, and yet one which could be used freely without risk of doing harm. Mr. Harrison had spoken highly of eucalyptus oil; he (Mr. Bate) believed that careful experiments showed its value to be somewhat lower than it had generally been given credit for. Had Mr. Harrison tried any experiments in the way of taking these micrococci, placing them in different vehicles and then watching their growth? He (Mr. Bate) had done something in this line, but he did not consider that he had worked out the subject sufficiently to render his results worth publishing. He had tried also to follow out their life history, and had found that this was considerably modified by placing the same form of growth in different media. This line of research was as yet quite in its infancy, but it would in the future play a prominent part in the solution of many surgical problems.

Mr. FOTHERGILL remarked that there had been a great deal of controversy over the relative value of various antiseptics, and it appeared very difficult to ascertain which was the best to use. He was in the habit of using oxychloride of zinc for root filling. He had not tried chloroform and gutta percha, but he imagined that thinly-mixed oxychloride of zinc paste was easier to get down the root canals. He should like to ask Mr. Spence Bate what strength

of bichloride of mercury solution he used and whether he had ever found it produce any irritation?

Mr. SPENCE BATE said he believed Professor Koch used a solution of 1 in 1,000, but he had used it considerably stronger than this. He saw no local irritation or other ill effects arising from its use, but he had been cautioned with regards to its use by a medical man holding a distinguished position in his own town, and he accordingly began to hesitate whether he was doing right or not.

In reply to a question whether he had ever used it as a dressing to an exposed pulp, Mr. Spence Bate said he had used it beneath the gum round the necks of the teeth. He thought that the great object in the treatment of alveolar periostitis was to prevent the growth of fungi in this situation, and that if this could be accomplished, the wasting of the alveoli would be arrested and the result would be a very important advance in treatment.

Mr. HENRY SEWILL remarked that what he most liked about Mr. Harrison's paper was that it fully recognised the fact that in treating the teeth the same principles were to be applied as were applicable to general surgery. He had heard papers read which were conceived in a spirit as though the teeth were mysteries worked by a miracle. The pulp was not a mystery, and its pathology was not unique; it presented no phenomena radically different from those met with in other tissues of a similar kind, and the same principles must be applied to its treatment. Whether we have the interior of a joint laid open, a wound such as a compound fracture, an injury of the skull exposing the brain, or an exposed pulp, the phenomena of inflammation were essentially the same and called for similar treatment. The days of empirical treatment were passed, and the great feature of Mr. Harrison's paper was that it recognised the fact that the treatment of dental diseases was now established on a scientific basis.

With regard to the practical points of the paper. He had suggested some years ago, before antiseptic surgery had been developed to its present extent, the use of absolute alcohol, and lately he had been using it with bichloride of mercury in solution (two grains to an ounce of spirit) for disinfecting root canals. He could not recall a case in which inflammation had followed, as it sometimes would after the use of carbolic acid, and though only an indifferent operator, he rarely had a case of acute perios-

titis, or anything more than slight irritation after plugging roots with antiseptic precautions such as Mr. Harrison had described.

Mr. OAKLEY COLES said he believed the success of any antiseptic was largely dependent upon having the pulp canals thoroughly opened and accessible. In some cases he had been treating lately, the pulp canals were fully opened, but the results of treatment were unsatisfactory until, at the suggestion of Dr. St. George Elliott, he enlarged the root canals ; and as soon as he was able to pump the eucalyptus oil to the apex of the roots he got perfectly satisfactory results. He found that, as a rule, essential oils were the most valuable antiseptics ; they seemed to penetrate the tooth substance to a greater extent and more perfectly than any solution. Absolute alcohol was a most valuable application to sensitive dentine ; its effects were both immediate and enduring. It had been said that the pulp must be treated on general surgical principles. But the vascularity of the pulp was not so great as that of many other tissues, and if it be destroyed below the level of the pulp chamber, he doubted if the surface ever healed satisfactorily ; in such cases he believed there was nothing to be done but to destroy it altogether, and completely clear out the canals.

Mr. J. S. TURNER said there was a small matter to which he might refer in connection with the perfect cleanliness so necessary in antiseptic treatment, and that was the fact that fibres of cotton wool were invariably left in the cavity after drying. They could always be seen if looked for with a magnifying glass. He used a hot air blast to get rid of them ; a little warm air soon got rid of them entirely.

The PRESIDENT remarked that though he was probably considered as one of the old school, he fully recognised the importance of antiseptics in dental practice. He had used eucalyptus oil, but had not been altogether satisfied with it, and had returned to the use of carbolic acid, of which he had had some twenty years' experience. He dried the cavity as carefully as possible, and used the crystallized carbolic acid, as pure as it could be got, without any dilution whatever. He had found this most effectual, and, as a rule, had had very little trouble with the antiseptic treatment of diseased teeth. For drying cavities he had for a long time trusted to the action of amadou. He had found this very effectual, whilst in using cotton wool he had met with the difficulty in completely removing

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it, to which Mr. Turner had alluded. The fibres could be removed with a syringe, but in the hurry of practice not always perhaps as carefully used as it might be. He now call upon Mr. Harrison for his reply.

Mr. HARRISON said that with regard to the statements to by Mr. Spence Bate, he had not made them on authority, but on that of Dr. Miller of Berlin, by wh subject had been thoroughly gone into and discussed, could only refer Mr. Bate to Dr. Miller's writings for the With regard to chloride of zinc being easier of introduction into cavities and root canal, he could not imagine anything e introduction than the solution of iodoform in chloroform. He had used chloride of zinc for some time, but had discarded it in favour of the latter solution. He thought it was scarcely fair to say that his paper was taken up with the consideration of an antiseptic, though he had certainly said a good deal about different preparations of iodoform, the reason being that he had been very much pleased with its use. He had used eucalypti oil and had failed with it, and it was chiefly owing to this appointment that he had been induced to look about for something better. He thought the antiseptic of the future for dental purposes would be a solution of iodoform in absolute alcohol. He should be sorry to use carbolic acid of the strength recommended by White, because it was then not an antiseptic merely but an escharotic, and the use of escharotics was generally to be avoided.

Mr. SPENCE BATE said he had read Dr. Miller's paper and was not quite satisfied with his statements. The experiments of Lister, Bastian, and others, went to prove that micro-organisms would only grow where air was present.

The PRESIDENT thanked Mr. Harrison for his paper and said that the business of the meeting was now concluded. The 11th Annual General Meeting of the Association would be held in London on August 19th, 20th, and 21st, 1886, with the advantage of Sir Edwin Saunders as President. He felt sure that whatever could be done, through his instrumentality or through the London members, to make that meeting a success, would be accomplished, and that the members would have every reason to be satisfied with the arrangements which would be made for their next meeting in the metropolis.

Mr OAKLEY COLES said he thought the members would

like to separate without according a hearty vote of thanks to Mr. White for presiding. The meeting, it was generally admitted, had been most successful, and this had been largely owing to the enterprise of the President, the members of the Local Committee, and all those connected with the Eastern Counties Branch. He felt sure all would be anxious to pass a cordial vote of thanks to the President, Mr. White.

Mr. J. S. TURNER said they also owed a duty to the Local Honorary Secretaries, Dr. Cunningham and Mr. Rhodes. He was pleased to see Mr. Rhodes present, and he hoped he would convey to Dr. Cunningham and the other members of the Local Committee, an expression of the high appreciation of the services they had rendered to the Association. He begged to propose a vote of thanks to the Local Committee, and especially to the Local Secretaries, Dr. Cunningham and Mr. Rhodes.

These resolutions having been carried with loud applause, the President and Mr. Rhodes briefly expressed their thanks, and the business of the Annual General Meeting of 1885 was then concluded.

The Demonstrations.

THE practical demonstrations of operative and mechanical work formed a very marked and interesting feature of the Cambridge meeting, and this, notwithstanding the fact that nearly half of those whose names appeared on the programme were from various causes prevented from being present.

Some half dozen chairs were occupied with demonstrations of different methods of gold filling. Mr. T. Cooke-Parson, of Clifton, filled two cavities, approximal and crown running into one another, in a right first upper molar, using an electric mallet; Mr. J. J. Andrew, of Belfast, filled an approximal cavity in a right first upper bicuspid, also using the electric mallet; and Mr. Alfred Jones, jun., of Cambridge, filled a labio-distal cavity in a left upper lateral, malleted by hand. But the demonstrations in this department of work which attracted most attention were those of Mr. Storer Bennett and Mr. Balkwill.

Mr. Storer Bennett filled rapidly, by the Herbst method, two approximal cavities in a right upper central and lateral, using in the former case a bloodstone and in the latter a steel instrument.

This demonstration, before a large audience, backed by the specimens, the results of Mr. Bennett's series of careful experiments, exhibited by him in the course of the meeting, will, we believe, do much to increase the steadily growing faith in the value of this mode of operating, and to stimulate others to further trials of a method, which, if it does not supersede, will at all events largely supplement and prove a useful auxiliary to, the hitherto better known methods of manipulating gold.

Mr. Balkwill, of Plymouth, demonstrated the use of the set of smooth-pointed instruments devised by himself for the rapid insertion of cohesive gold. The tooth on which he operated was a right lower second molar which had been very extensively disintegrated by caries. The proximal wall of the tooth was entirely destroyed, and a large portion of the buccal wall was in the same condition, while at the least three-fourths of the area of the crown had disappeared. Notwithstanding these unfavourable conditions, the operator filled the cavity, restored to a great extent the contour of the tooth, and polished the filling in about an hour. The gold used was, at the commencement, Herbst cylinders, but after the filling was well started, Pack's cylinders were used to complete the operation. Mr. Balkwill explained minutely the theory of the wheel-like motion which he imparted to his instruments, and laid great stress on the necessity for using them with this motion, and not as mere burnishers.

Mr. NEWLAND PEDLEY demonstrated the use of Hammond's wire splint for fracture of the inferior maxilla.

Dr. BOGUE, of New York, demonstrated the use of his system of separators. To those who have hitherto looked upon the separator as an instrument of torture, this demonstration must have afforded unmixed pleasure; and we venture to prophecy that few out of the many who witnessed Dr. Bogue's delicate manipulation, and the ease, rapidity, certainty, and painless manner in which his instruments were adjusted, will in future classify the separator as a near relation of the old thumb-screw. It was both amusing and instructive to observe the demeanour of the succession of volunteers who submitted to the operation. How the set features of heroic resignation gradually calmed into a look of tranquil submission, and ended in a silent expression of undisguised wonder. These instruments are the outcome of years of thought and experience on the part of Dr. Bogue, and their practical success depends on the extreme accuracy and almost hair-breadth refinement with which they are constructed.

Dr. C. M. CUNNINGHAM gave a very interesting demonstration of the preparation of cast metal plates, and the process, in his hands, appeared both simple and satisfactory. The apparatus used consisted of a Fletcher's Bunsen burner, a ladle, and a box of clean sand to catch the surplus metal. Dr. Cunningham showed the three forms of flask mentioned in his paper, and cast three plates. The flask was first heated over the Bunsen burner until it was rather hotter than the hand could bear comfortably, the principal points emphasized being that the flask should be quite dry and not too hot, and that the metal should be poured just at the melting point. In one case the mould was being used for the second time, fresh teeth having been ground and fitted to it. Dr. Cunningham exhibited also eight different plates, three lower and five upper, showing how the metal might be most suitably employed. Of the former, one was a partial bar lower, another a full lower set with sectional gum blocks, and the third, lent by Mr. Verrier, showed a continuous gum facing mounted on cast metal. Of the latter, two were partial dentures worn on suction plates; another a full plain set mounted in vulcanite on a cast metal base; the fourth a continuous gum facing attached with rubber to a cast metal plate; and lastly, a set of teeth partly mounted in wax, with the cast metal plate grooved and stippled to show the method of attachment. One of the plates showed a canine refixed with "contour amalgam," as described in the paper. In fact, the demonstration could not have been made clearer or more complete.

Mr. Verrier's demonstration of the various stages of Continuous Gum Work also attracted much attention. He went through the whole process of soldering the teeth to a platina band, packing with gum body, firing, and enamelling, but unfortunately a bad supply of gas interfered considerably with the success of his work. He also flaked a continuous gum facing into which he cast cheoplastic metal, the result being very satisfactory. •

In short, we believe that many members of the profession would have found it worth their while to attend the Cambridge Meeting for the sake of the demonstrations alone.

The Art Exhibition.

THE exhibition of pictures and works of art executed by members of the profession, which was suggested and carried out

Mr. Oakley Coles, proved a very interesting as well as novel feature of the Cambridge meeting.

Some forty pictures were exhibited. Mr. Charles Tomes sent three oil paintings,—one of which, “Showery Arran,” was exhibited last year at the Royal Academy,—and a water-colour sketch of the picturesque old town of Rye, in Sussex, showing true artistic feeling. Mr. Alfred Prager contributed four skilfully executed oil paintings, his “Study of a Head” being specially noticeable, and a couple in water colours. Mr. F. W. Richardson, of Derby, sent two very effective pictures in mono-chrome; Mr. Fenn Cole, of Ipswich, three oil paintings, all good,—“On the Tamar,” in particular, being a very pleasing study from nature. Mr. B. W. Harcourt sent a couple of picturesque sketches in water colours of old Norwich; Mr. Arthur Underwood two very clever sketches, also in water colours; Mr. Howard Mummery two oil paintings, showing both care and skill in execution; Mr. D. Hepburn several very pretty water colours. A pair of landscapes, which attracted a good deal of attention, and to which the name of Mr. Thomas Underwood was attached in the catalogue, were painted by Mr. Robert Ganthony, a retired member of the profession. We must mention also the very artistic water colours of Mr. G. C. Whyte, of Glasgow; they were worthy of a place in any of the public exhibitions. Mr. J. A. Fothergill, of Darlington, and Mr. A. J. Woodhouse sent some good photographs; whilst amongst the other exhibitors were Mr. Henry Evans, and Mr. Charles Sims.

Mr. W. Lord, a pupil of Mr. Oakley Coles, showed a copper plaque, very cleverly ornamented with repoussé work, and Mr. Oakley Coles himself a carefully elaborated design for a circular Polyclinic, which seemed admirably planned, but as the cost of the building is estimated at £100,000, we fear the chance of its merits being practically tested is somewhat remote. There were some other exhibits, perhaps not less worthy of mention, but we have said enough to show that the experiment was a successful one and we hope to see it repeated.

The Dental Loan Collection was not as large or as diversified as was that seen last year at Edinburgh. Mr. Oakley Coles exhibited his very interesting collection of models of cleft palate cases, and Mr. Manton, of Sheffield, sent a number of interesting pathological specimens, but there was ample space for a much larger display. As usual, Messrs. Ash and the Dental Manu-

facturing Company exhibited a first rate selection of instruments and appliances of every kind, and their tables were constantly surrounded by admiring and inquiring members.

ORIGINAL COMMUNICATIONS.

The Hopes and Fears of Dentistry.

By OAKLEY COLES.*

If any large body of men be carefully observed, it will be found that they like to generalise their duties and individualise their benefits.

We have had a good many in the history of the past thirty years who have talked and written freely of the advance and reform of the profession, but whose personal efforts have been chiefly directed to taking advantage of the reforms that have been talked of and that *seem* to some people to have come about by themselves. No progress, no reform, has ever come about by itself. Nay, it has not even come about by the efforts simply of a committee, it has always been the direct product of the individual, acting either alone or in concert with his fellow-men.

Crowds without leaders are merely destructive machines made up of dissatisfied human energies. Three men impressed with a strong individuality will do more than three thousand who have no consciousness beyond a restless discontent, and no ambition beyond a self-contained and selfish apathy. A mass of men who have each a definite purpose at heart will attain their object, but a mass of men who will not think for themselves nor act for themselves, either alone or with others, can attain nothing more certain than movement without progress, change without reform.

Let us recognise the fact with perfect clearness and frankness, that there is no such thing as abstract obligation—all obligation, whatever its nature may be, is distinctly and directly personal and individual. The work that needs doing may be for the sake of others or for our own sakes; all that need be insisted upon is that each member of the profession must take his own share and part in that work. These points need reiteration at the present

* Read at the Annual General Meeting of the Association at Cambridge on August 27th.

time, when those who are now young are reaping the advantages secured for them by those who were young and self-denying some thirty years ago. Communities have short memories, as republics have scant gratitude for those who have served them. We need to keep up the spirit of self-sacrifice, if only that we may hold in faithful recollection the earnest workers of the past. For men of kindred spirit will ever be in touch and sympathy with those who held no service dearly bought that helped their fellow-men.

Those who have been in the habit of asking others to work have often been met with the answer that there is no unwillingness to help, but the difficulty is to know what to do. May I be allowed to try and solve this problem by indicating a few of the things that still need doing, although some may consider that enough has already been accomplished. All "the hopes and fears of the profession" are bound up in the work and the workers of the present day; we are writing our own history, whether we know it or not, and what the future of the body of dental surgeons may be, depends not on outside influence or circumstance, but upon ourselves, and upon ourselves as individuals, and not merely in a collective capacity.

Commencing with the work that comes nearest to those practising in our great industrial centres, it may be pointed out that we need more precise information than we have at present as to the state of the teeth and gums amongst the workers in copper. It is beyond doubt that the salts of copper, locally applied, have a definite influence on dental tissues; what we want to know is whether such influence, operating through the system, becomes either curative or prophylactic in regard to dental disease. Again, with regard to the influence of mercury, we need accurate records of the variation in the character of the oral mucous membrane and secretions amongst those who are daily subjected to the influence of mercury in any form. Whether, as in the case of phosphorus, it is essential that there should be a solution of continuity of structure before the toxic effects of mercury become manifested, is, I believe, still an open question. We know, on the other hand, that salivation by inunction depends for its success to a great extent upon the vigour with which the ointment is applied to the skin.

It would be interesting to learn, also, the influence upon the teeth of working in the great acid manufactories of the Northern and Midland Counties.

We should also be informed as to the scientific explanation of the prevalence of decay in the teeth of those who are employed in our great cotton and wool spinning establishments in the north. Is the decay a cause or an effect of dyspepsia? is the decay or the dyspepsia a direct or a side product of the industry?

Is there any correlation between the condition of the teeth amongst the dwellers in the apple growing districts of Devonshire and the vine growing districts of Burgundy?

Is the neuralgia of the Fens caused by dental irritation, or merely coincident with dental lesions; and is the neuralgia of visitors to a fen country identical in focus and area of distribution with that which is found amongst the dwellers in a miasmatic district?

These are questions that may best be answered by the observant dental surgeon, and if we can but collect facts and then compare them before coming to a conclusion, we shall see how much one man's work will increase the value and importance of another's observations.

It may be urged that the information to be gained on the subjects indicated would be so slight that its publication would serve but a small purpose. That is a mistake. The Journal of the Association offers facilities for the publication of the briefest possible statements, and as a matter of experience it is found that the short paragraphs generally attract the most readers. Nor ~~may~~ it be thought that because these subjects have already been treated of that they are exhausted. It is not so, for year by year we have been gaining knowledge in the actual methods of research, and perfecting the appliances for carrying out our improved methods. Nor should it be forgotten that the conditions to be examined change in their character with each generation.

There is a peculiar condition of the teeth to be found sometimes in connection with port wine stain of the cheek that needs investigation. I am not aware that attention has ever been drawn to the subject either in the general or special text-books of pathology and surgery. The congenital varicosity of the minute vessels that gives rise to the venous or arterial "port wine stain," if it occurs on the cheek externally, will also be found in some cases on the mucous membrane covering a corresponding area, and certainly in three well-marked instances that I have had ample opportunity of examining, the molars and bicuspid were also discoloured to a marked degree. They presented a dull leaden appearance, with patches of dirty yellow, the opacity was much

greater than in any other teeth in the mouth, and the abnormal dental condition was confined to the bicuspid and molars of the upper jaw; there was no apparent defect in form or structure, but simply a change due to some cause operating during the period of the greatest vascularity of the organ. The observation of three cases is of no value excepting as an indication of what to look for, so that the facts may be either confirmed or their singularity proved, and, further, that the accuracy of the observation having been established by a number of instances, some use may be made of this congenital pathological state to elucidate the various points connected with tooth development and growth.

Some years ago I brought before the Odontological Society of Great Britain a case of round-celled sarcoma attached to a lower molar tooth, the tumour being about the size of a split pea. The microscopic examination was made by my friend Dr. Klein, and its structure clearly established. In the discussion that followed, Mr. Alfred Coleman said that he believed these sarcomatous tumours attached to teeth were very common, and recent observations have tended to prove the same fact. The point of interest for dental and general surgeons is, under what conditions do these frequently-occurring sarcomatous tumours become a source of serious trouble. Why do they grow in some cases and remain small and inert in others? This is a question of great interest, and one that needs careful observation and good work to clear up satisfactorily.

Is it not possible that the dental surgeon may be able to help to determine the relationship and distinctions between gout and rheumatism?

The form and character of the true gouty tooth is now fairly well known. Is there either a positive or a negative chain of evidence by which we may differentiate between the teeth and oral secretions of the hereditary gouty subject and the hereditary rheumatic patient? Does decay occur in the same position in both cases? Is the tooth structure varied or identical? Is it or is it not a fact that in gouty patients we get a reverse condition as to material and structure to that which obtains in the true rheumatic subject? On this subject well-directed research may afford most valuable aid to the physician and render the treatment of gout and rheumatism less empirical than it is at present.

As a cognate subject we want to know the exact influence upon teeth, of the altered secretions that are found in the course of

certain of the fevers, notably—typhoid in England, and some of the fevers of India. In this respect our work should lie in the direction of discovering the best prophylactic treatment, since that alone remains under control. The fever must run its course, but there is no reason why every precaution should not be taken to limit the extent of its injurious influence. If it could be clearly shown that much of the mischief is preventible, we may be well assured that the physician would gladly adopt such measures as the dental surgeon could suggest in order to preserve to the patient such important organs as the teeth. This is work that can only be carried out at the bedside of the patient, but it is so important that it should certainly be done. At the same time it should be possible to ascertain whether with increase of temperature there is a co-incident alteration in the character of the oral secretions—and, still further, whether this alteration is identical in the parotid, sub-lingual and sub-maxillary glands.

Passing to a problem of deeper interest, though of a purely scientific character, we need some explanation of the cause of the eruption of the teeth. Why are they erupted at all? Why are they only erupted to the extent of the enamel crown? Why do they, as a rule, erupt in a given direction? Is the explanation to be found in the method of formation of the tooth? Is there a tendency of the inflected epithelium forming the enamel organ to return to the position from whence it came? and is this view strengthened or weakened by comparison with the development of the eye-ball; the lens and conjunctiva corresponding in its growth from the epiblast, to the epithelial involution that forms the enamel organ, and the optic vesicle with its progressive changes of form, corresponding with the dental follicle? Will imperfect involution or folliculation give us a clue to the origin of odontomes, and why some are erupted and others remain in the jaw? It is certain that there is not a period merely in which tooth eruption is only possible, but that the motive, force, and direction of eruption remains throughout life, and is only interrupted by opposing influences, without the faculty of eruption being lost.

As intimately connected with the same subject, we may hope to find some means of checking the tendency of the teeth in early middle life to protrude from their sockets. The post-mortem examination of such cases may throw light upon this subject, which requires careful investigation, for there seems to be an appreciable increase in the frequency of their occurrence. It

has often been asserted that the training of the dental surgeon is equal to that of the general practitioner of medicine in all essentials, whilst the special training that the dental student undergoes is altogether additional. It would be satisfactory to see this statement confirmed, not merely by frequent reiteration, but by actual work done in the domain of general medical science. The leisure and culture that are within the reach of the dentist of the present day, certainly makes such a thing possible; willingness and self-sacrifice alone are wanting for its accomplishment. If it be asked in what direction such work may be found, I would venture to suggest, on the authority of the late Erasmus Wilson, that the general descriptive anatomy of the brain might, with advantage to science, be almost entirely re-written. I do not refer to the microscopical anatomy, as that is the product of quite recent times, but the terms and general description might, with advantage, it has been thought, be reduced to a more scientific standard. We already have two hemispheres with a longitudinal sinus. Why should not the idea of geographical division be still further carried out, and the whole brain divided into degrees and minutes of latitude and longitude? Certain fixed points would mark off the degrees, and by such a method the exact location of any pathological change could be mapped out. The present names might still be used as landmarks, but nothing more. I put forward this suggestion with all submission to the opinion of advanced anatomists; my chief point being that if such work is necessary and feasible it might well be carried out by a member of the dental profession.

One other item in the direction of scientific labour and I have done, not for lack of materials, but for lack of time.

In the treatment of congenital cleft palate by the Süersen method, we have a means of proving to demonstration that the growth of the upper jaw is brought about by the pushing forward of the anterior part of the maxilla on a horizontal plane. When the second molars are erupted, and we may take the dental region as relatively fixed in form, it is quite possible to measure off exactly the extent to which the jaw is carried forward, by noting the constant increase in length required for the obturator, in order that its distal surface may be kept in contact with the posterior wall of the pharynx. This does not occur to the same extent when fissure through the alveoli and lip is present, as in simple fissure of the hard and soft palate, for the reason (as I

think) that the body of the sphenoid acting through the vomer is materially interfered with. All this, however, needs accumulated evidence before we can come to conclusions of any scientific value. If amongst the subjects that have been suggested for investigation there be not sufficient variety, then I would urge an examination of the new "Index to the Nomenclature of Disease," recently issued by the Royal College of Physicians. There, at any rate, will be found "infinite variety."

But our work is not limited merely to scientific questions and their solution. "The hopes and fears" of our profession are bound up with the success or failure of the British Dental Association, and what are we to think when, after nearly six years we can only claim 560 men as members out of a possible 2,000.

Association means a recognition of the necessity for interdependence, and willingness to sacrifice the personal for the common good. Are we to assume that the society meeting here to-day has not fulfilled these conditions? Such a conclusion would be most unjust. Speaking from the very centre of those who have been its founders and workers from the beginning, I can state in the most positive and emphatic terms that their one guiding principle has been to secure the greatest good to the greatest number. The profession at large will never know, even, if in part it cares to remember, how much it owes to the labours of such men as John Tomes, Smith Turner, James Parkinson, W. H. Waite, and a score of others, who have never counted the cost or hesitated at any sacrifice that seemed essential to secure the success of the Association. And what have the thousands of outsiders done up to the present time? Why, simply stood aside and grumbled. And what has come of the grumbling? Precisely that which we might have expected—nothing, and I don't know that anything else ever did come of grumbling. The world is not made better by saying it is bad, and this little world of ours, with all its hopes and fears and discontent and petty jealousies, must be made better by work and self-denial, and not by standing off and letting things drift, or by assuming pre-eminence in

As much saying how things should *not* be done. If it enters to find some of any man in the profession to do a good thing, middle life to *prove* and do it, instead of waiting for someone examination of such casual waiting for others to do that which requires careful investigation of the greatest difficulties that as appreciable increase in the *fr* tend with. Actions are neither

initiated nor completed without the exercise of the individual will, and they are rarely perfect without the influence of the individual conscience.

“That man seeks a little thing to do,
Sees it and does it :
This man, with a high thing to pursue,
Dies ere he knows it.”

When Robert Browning wrote those lines, he must have been thinking a good deal of the unpopularity of unattractive yet essential duties. But now let me ask you if the professional man is wise in limiting his work and interests to his own speciality. My own belief is that such a policy is a most unwise one. If to grow rich be all the aim, then let him do one thing only, better and quicker than other men, and he shall die a rich man—living as a well-nourished creature withal. “But is there nothing more? In due time, let him critically learn how he lives, and the more he gets to know of his own life’s adaptabilities, the more joy-giving will his life become.” No training can be true culture that does not throughout life broaden our sympathies, increase our knowledge, and proportionately enlarge our capabilities. And if I be asked whether all this be compatible with the due fulfilment of our every-day duty, the answer is to be found in the exhibition of works of art executed by dentists, and shown in a collected form for the first time at this meeting. It is the great evil of specialism that it tends to narrow the faculty of observation and limit our range of interest, unless some persistent effort be made in an opposite direction, and, from this point of view, the art collection, small though it be, may be recognised as one of the most hopeful signs of our progress. But I must not keep you lingering longer over these hopes and fears of our life, they are bound up together, and whilst we hope that the work waiting to be done may be accomplished, we shall do well not to fear any lack of earnest workers. I want the world to see that the training of the dental surgeon develops some of the highest faculties that man possesses, and if I be asked to reduce these speculations to some embodiment, fulfilling all our hopes and disappointing all our fears, some reality that is appreciable by knowledge, sense, and sympathy, then let my last word be that we possess such an one in the person of our veteran leader John Tomes.

On Cast Metal as a Base. *

BY CHAS. M. CUNNINGHAM, D.D.S., Michigan ; Cambridge.

MR. PRESIDENT AND GENTLEMEN,—The following remarks have been composed with a view to calling attention to recent improvements in cast metal as a base for artificial dentures. In the absence of an ideal base, cast metal, as recently improved, has properties which justify it having an important place among the resources of the dental laboratory.

When we review the properties of the bases generally used they obviously divide themselves into two groups. On the one side we have the swaged metal plates, and on the other the plastic compounds—vulcanite and celluloid. Each class is distinguished by characteristics of its own which are not shared by the members on the other side.

Cast metal may be described as a compromise between these two groups. It has all the ease of manipulation, contouring capacity, and low cost which make up the merits of the plastic group; united with the strength, cleanliness, non-irritant and good conducting properties, which make up the merits of the swaged plate group.

Clearly then we have a good plea for the more extended use of this base. In difficult lower cases where the mechanical difficulty may be overcome by a heavy plate, it will be welcomed for its own sake.

In cases where a sensitive mucous membrane rebels against the irritation of a vulcanite or celluloid plate, and expense forbids recourse to a swaged metal plate, it will be welcomed as substitute for a base of greater intrinsic value and manipulative cost.

Cast metal as now supplied by Watts, Weston, and others, is a bright white metal which melts at a low temperature, which may be moulded or cast with great perfection, which does not warp nor change its shape, and which forms when finished a serviceable, cleanly and remarkably strong plate, giving great satisfaction when adapted to proper and suitable cases. When tested by analysis, Watt's metal turns out to be a tin base alloyed with bismuth, while Weston's is a tin base alloyed with cadmium,

* Read at the Annual General Meeting of the Association at Cambridge, on April 29th.

bismuth and copper.* The method of manipulating it is extremely simple. The piece is mounted and tried in wax, the same as in making a rubber plate. It is then invested in plaster, a flask being used similar to the ordinary rubber flask. When the plaster has set, the two halves of the flask are separated and the wax scalded out, channels are then cut for the inlet of metal and the outlet of steam or air. The two halves are now placed over a gas stove to dry out all moisture, a process which takes about from two to three hours. When this drying process has been satisfactorily accomplished, the two halves of the flask are screwed together and it is placed ready to pour. The metal should now be placed over the gas stove, it only takes a few minutes to melt, and should be poured as soon as melted ; if over-heated the plate does not come out so smooth and bright as it ought to do.

The whole process of melting and pouring only takes a few minutes and directly the metal has set the flask may be opened. The piece is then finished in the same manner as a vulcanite plate. When proper precautions are taken one may be certain of bringing out a perfect cast every time, though should any flaw arise, it is easily corrected as the metal is so readily repaired. This may be done with the metal itself and a blow pipe or soldering iron, or by using contour amalgam. This latter resort is my favourite expedient, the free mercury unites with the metal and a perfect piece of cold soldering is the result. Should the casting turn out imperfect, a portion of it may sometimes be melted out with the blow pipe and re-cast, a perfect union being obtained between the metals, or the entire piece may be taken out and remelted, the teeth being picked out of the molten metal as they float on the surface and replaced in the flask with any small portion of plaster that may have broken away. Another expedient may be adopted where the casting cannot be removed without injuring the mould. The flask is reclosed, placed over the gas stove and heated until the metal runs through the fissure between the two halves of the flask, then the flask being allowed to cool down below the melting point of the metal, the piece may be re-cast. Where a very difficult plate has to be cast, it is a good plan to heat up the flask to the melting point of the metal, then bank it up with moulding sand to prevent the metal flowing out, when this is done it

* According to analysis, Watt's New Metal consists of Bismuth 5 parts, to 95 of tin. Weston's of 4 parts Bismuth, 10 of Cadmium and 86 of tin.

will be found that a sheet of metal may be cast as thin as the pattern lead generally used. I have used three of the flasks now supplied; Weston's, Watt's, and Hayford's. The first two I have found very good, though I must say that I find Weston's flask superior to Watt's, as it is easier both to fill it and remove the plaster from it, and is designed I think on a better principle. Hayford's flask is less convenient to use than the others, and is supplemented by a lever press to consolidate the metal, but up to the present moment I have not been able to use this apparatus with satisfactory results. Cast metal will be found most useful in cases where it is desirable to make a heavy lower plate. Excessive weight may be obtained by making the piece entirely in metal. Then in cases where the weight should be modified, it can be used very conveniently in combination with rubber. In upper cases it will be found decidedly useful in small partial dentures, where it is undesirable to employ gold. And I think on the whole it will be found, where suitably employed, a stronger and more wholesome material to wear in the mouth than rubber. Experience shows it to be very strong and durable, and free from the tendency to crack which is the weakness of the rubber plate. It has a characteristic of much value when used as a partial plate. When pressed into place, any prominent point which prevents it going down, becomes brightly burnished against the teeth, so that the obstruction is made plainly visible and thus easily removed.

Another feature is rather unfavourable however, that is, the characteristic softness of the metal. In cases where there are isolated teeth that cannot be invested with metal and where the pins alone must be relied upon for support, there is a tendency for the teeth to work loose. Notwithstanding their looseness, however, these teeth may last an uncommonly long time, and I have never yet seen a tooth work out. This difficulty may be overcome by cutting away the metal from about the pins of teeth and filling in with contour amalgam. But the best way, perhaps, would be to avoid the difficulty altogether by attaching isolated teeth to the plate with amalgam after the piece is taken out of the flask. While this is being done the teeth should be held in place by a plaster investment. For full upper dentures a thin plate may be cast and the teeth attached with rubber. In this case the plate should be stippled, or have grooves cut in it, to form holding points for the rubber. When we consider how useful

such a plate would be for testing the correctness of the model, getting a correct articulation and then trying the teeth, it is obvious that the extra trouble of casting the plate might easily be more than made up by saving the time of the operator. Besides, such a plate would be much stronger than a complete rubber plate. I have known, however, full upper cases in cast metal with gum section blocks, to be worn with success and great comfort to the patient. As regards repairing, partial recasting, the soldering iron, and above all amalgam, will meet all requirements, though according to present experiences repairs are not likely to be largely called for.

Dental Education.

By FRANK E. HUXLEY, M.R.C.S. & L.D.S.Eng., Birmingham.*

CONSIDERING the advancement which dentistry has made during the past fifteen years, we may fairly consider whether the course of education as formerly prescribed now meets the requirements of the present day.

The present position of dentistry may be described as an independent speciality of medicine, and it is a serious matter for inquiry how far a curriculum intended for those who are making medicine proper the object of their study, can be of service to those who should aim at thoroughly mastering the fundamental principles of general medicine and surgery, but who do not expect to touch upon the wide speculative and practical learning of the General Practitioner.

The detail of teaching remains to a great extent in the hands of the medical schools and of individual teachers, who doubtless in many cases manage to so conduct it as to be of greatest service to their pupils. Still, a general reconsideration of the curriculum would do much to lessen the difficulties of teachers and lead to a greater uniformity of teaching in the various schools.

The examinations for the Dental License are in the hands of experienced men who take care to move so far as possible with the requirements of the day. But examinations are not infallible tests; they have to be included in a strictly limited time, and it is impossible that more than a few of the subjects can be touched

* Read at the Annual Meeting of the Central Counties Branch on the 9th ult.

upon : and the most successful teachers are often those who are most familiar with the weak points of the examinations. For instance, we are told that at one college metallurgy is overlooked, and at another dental mechanics or comparative anatomy are never asked for. Nevertheless, these are all subjects of which the student is supposed to gain a fair knowledge in the dental schools.

Let us now examine the subjects seriatim as they occur in the college curriculum, bearing in mind that this is usually supposed to be carried out in two years, one of which will probably be overlapped by one of the three years spent at mechanical dentistry.

1st. Anatomy, about 100 lectures are generally required in the first winter, in addition to which a class of osteology is found necessary. About three months' dissection can usually be taken in the first winter. In this course the whole of the body, from the brain to the sole of the foot is treated of in equally minute detail.

2. Chemistry during the first winter and practical chemistry in the first summer is the usual plan. The great importance of this subject cannot be denied, and considering that no previous knowledge is required, the time devoted to it seems short enough. Could it not be with advantage extended so as to include a sufficient knowledge of metallurgy and the elementary facts of organic chemistry, which should indeed form a part of any thorough chemical course ?

3. Physiology :—this subject cannot possibly be curtailed, but any matter that is but theoretical should be excluded for our purposes, or, at least, only rapidly noticed. A great advantage would be gained if a groundwork of practical histology could be given to the dental student, as many of us would gladly enter on some research, but find a stumbling block to start with from never having learned how to mount and manipulate specimens for the microscope.

4. Materia Medica : Here we are called upon to listen to a dreary description of ancient and modern remedies,—animal, vegetable, and mineral,—with their real or supposed virtues ; a smattering of botany, organic chemistry and pharmacology being thrown in to weary us still more. Of the remedies which we shall require in our daily practice as dentists we hear little or nothing ; for it must be remembered that no other lecturer is sup-

posed to name them, unless the teacher of dental surgery manages to include them in his already overburdened course.

5. Medicine and Surgery we may notice together as the lectures in both are open to the same objections, whilst a knowledge of the *elements* of both is indispensable. A lecturer in a single course of medicine will do well if he goes systematically through diseases of the heart, lungs, and liver; or a whole course may almost be occupied with the brain, or skin diseases. The surgical course will probably be more useful, especially if of a practical nature.

In neither of these courses is it at all probable that the important subjects of general or surgical pathology will be taught, and the student may be totally ignorant on the subject of healing of wounds or the process of inflammation.

The principles of medical and surgical diagnosis taught to a small class in the out-patient room of a hospital, that would enable the student to recognize the more common diseases, would be of infinitely more value than a smattering of knowledge on aneurisms or the surgery of the rectum.

So much for the general subjects. It will be seen that much is left in the hands of the lecturers on special dental subjects, if students are to acquire the knowledge necessary for their profession from the schools.

1. Dental Anatomy. What chiefly calls for remark in this course is the comparative dental anatomy. Is this of any use at all to the dentist? Possibly if he intends going into research it will be, but he will find he has in his grasp but a narrow slip of the vast sciences of zoology and biology, and without a deep knowledge of these it would be idle for him to speculate on the development or degeneration of the tooth or of any other single organ. Few dentists are competent to deal with this difficult subject, and it might be better to devote the course entirely to the structure and development of the human tooth and its surroundings.

2. Dental Mechanics. Anyone who has tried will know to what extent this is capable of being taught by a lecturer to a class.

3. Metallurgy has been already noticed under the head of Chemistry, but to examine the course as it stands:--In the first place it is generally given by a lecturer who is totally unacquainted with the technicalities of dentistry. Blast furnaces and pig-iron are very useful things, but we should be much more instructed by

some practical hints on gas as a fuel, special alloys for fillings, and above all in some of the mysteries of the properties of gold as used in our art.

4. Dental Surgery. I have purposely left this till last, as it often has to do much to cover the shortcomings of the instruction in the other subjects. If the way were properly paved, the dental surgeon could at once commence to treat of disease as occurring in the mouth and teeth with its proper local and general treatment. As it is his pupils often know nothing as to the course of an ulcer or an abscess, of the properties (sometimes dangerous) of the drugs he proposes to employ, nor of the chemistry of the materials for filling, &c. He also has to pre-suppose a certain amount of practical knowledge which the student may or may not have gained at the Dental Hospital before he attends his lectures. Indeed the pupils to whom he is lecturing on calcifications or exostoses may not know as yet the difference between the enamel and the dentine, or even be able to distinguish the different teeth.

Now let us consider how the existing defects might be remedied. I have already hinted that reform must come both from the schools and the licensing bodies, but the latter are not likely to act except at the instigation of the former.

Firstly, as regards the time employed, the majority of students take practically five years to obtain their diplomas, although four is the prescribed minimum time. If five years were compulsory the student could commence his work in a more systematic and scientific way,—for it must be borne in mind that most of them start off with a view to accomplish their *curriculum* in four years. A youth passing his preliminary examination at sixteen years of age could then comfortably qualify by the time he was twenty-one. Sixteen is none too young for entering on laboratory work, and everyone with experience knows that the longer it is delayed the more difficult it is to obtain manipulative skill in the mechanical department, and ultimately through it in the surgical. If from the onset the study of chemistry were taken up, and also the lectures on mechanical dentistry, additional interest would be given to the work at the bench, and the pupil's mind elevated above the level which a mere mechanical occupation is apt to engender. An hour daily could easily be spared, and would in a year allow a sound knowledge of the subjects to be gained.

Physiology might come next, occupying most of the second year; and when this was finished the pupil might begin to visit

the Dental Hospital. He would thus have disposed of three important subjects before beginning his more strictly medical work.

During the third year his anatomy could be steadily advanced with, leaving the fourth more free for his medicine and surgery, and the last for finishing work at the Dental Hospital and his "special" subjects.

Next with regard to the lectures: As dental students are never likely to be in such large numbers as are medical, I would advocate the class principle as far as possible, and I cannot see how the courses delivered to the medical students in medicine, surgery, and materia medica can well be made to serve our purpose. Let the *strictly dental* metallurgy be given with *dental materia medica* as two short courses by a dentist. Introduce a new course of pathology. If *comparative dental anatomy* has to be learned, a few lectures by a good comparative anatomist would best suffice. And lastly, let the lectures on dental surgery be plenty, and if possible let the student hear the views of more than one practitioner on all subjects of debate in practice, and have his attention called to all the different methods of working that can possibly be of any use to him.

I have made but little reference to hospital practice, but would advocate at the general hospitals both surgery and medicine being studied up to a certain point, and would give the preference to dressing in the out-patient rooms rather than wasting much time in the wards, where the dental student is apt to be snubbed both by his fellows and the staff.

Some of the American colleges go so far as to appoint a lecturer on nitrous oxide. Without commenting on the desirability of this course, we must admit that it should certainly be the duty of one teacher to give thorough instruction in the use of anæsthetics to dental students. If this were done the much vexed question as to the right of a dentist to administer them might be set at rest for ever. Their proficiency might even be certified by public authority, as is done in the case of vaccination.

In the foregoing remarks I have excluded the question of taking a surgical in addition to the dental qualification. The advantages of doing so will always be sufficiently apparent, and the suggestions made would facilitate matters for students so doing, by condensing the purely dental course. But the immediate object in view seems to be the perfecting of the curriculum for the dental diploma.

The time must come when the dental schools will be placed on an independent basis instead of being tacked on as most of them now are to the medical schools. A great economy of students' time and money could thus be effected, and a more efficient teaching given by a less numerous staff.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odontological Society of Great Britain.

THIS Society held its first meeting after the recess on Monday, the 2nd inst., Mr. CHARTERS WHITE, Vice-President, in the chair.

After the reading of the Minutes, Mr. THOS. A. ROGERS requested permission of the Chairman to say a few words before the regular business of the evening commenced. In a few days the Society would enter upon its thirtieth year, a term which was usually regarded as coinciding with a generation of the human race; yet of the eighteen founders of the Society nine still survived, and some of them were not only alive but still actively engaged in practice. Considering that they were all men of mature age at the time referred to, he thought that this was a very fair record for the profession. Of these workers there was one to whom they were all deeply indebted. One who, in a quiet unobtrusive way had rendered them priceless services; who united practical business habits with courtesy and tact, the most generous temper with the most outspoken candour, a very firm will with the most considerate and thoughtful kindness; whose truthful and honourable character so completely commanded the confidence of the profession that all its public property had been entrusted to his guardianship.

A few of the Treasurer's oldest friends had thought the Society would be pleased to see his portrait in its Meeting Room. It was to be hoped that Mr. Parkinson would continue to occupy his present position for some years, but the time must come when the present elders of the Society would be replaced by others, and these successors might perhaps look with some interest on the "counterfeit presentments" of those who, during the latter half of this century, had devoted their time and energies to promoting the highest interests of the profession. On behalf of those who had joined in this labour of love, he begged the acceptance by the Society of Mr. Parkinson's portrait, and requested that it might be

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given a local habitation in the place where he had done so good work.

The PRESIDENT replied that he would not attempt to add anything to the eulogy which Mr. Rogers had pronounced, further to say that he felt sure the members generally would endorse word of it. He gratefully accepted the portrait on behalf of the Society; it was one which would be prized by the present members and their successors as long as the Society should exist.

Mr. CHARTERS WHITE exhibited and presented to the Meeting models of the mouth of a young man aged 24, showing a supernumerary central and canine in the upper jaw.

Mr. STORER BENNETT read a communication sent by Mr. W. Dunn, of Florence, describing two interesting cases which came under his notice at the Dental Dispensary in Florence.

The first was that of a girl, thirteen years of age, who came requesting that the right lower central incisor might be extracted. The tooth was discoloured, very much out of line, and loose. Mr. Dunn thought it must be one of the temporary set; but on removing it he found that it was a permanent tooth, that it was bent at a considerable angle, and that in this angle there was a miniature tooth attached by its extremity to the periodontal brane of the bent tooth. Closer examination showed that the larger tooth had been fractured transversely, at about the level of the gum, and that the two parts had reunited. The smaller tooth was quite perfect in all its parts, possessing its cementine, pulp cavity, and enamel. Mr. Dunn sent a section of the latter and also one of the deformed tooth made across the line of fracture.

The second case was that of a little girl, three and a-half years of age, who, in falling over a pail, had knocked out the upper incisor. The child was brought to the Dispensary next day by her mother, who brought also the tooth. The latter presented a large opening at the extremity of the root through which the pulp had passed, but the pulp cavity was quite empty, whilst between the remaining central and lateral incisors was a vascular mass, highly sensitive, and having the form of the missing tooth. It was in fact the pulp which had remained behind the outer casing of the tooth only having been torn away. The mass was cut off as close to the gum as possible, and the wound was cauterized with a small quantity of strong nitric acid. Mr. Dunn sent some sections of this also for microscopical examination.

Mr. S. J. HUTCHINSON related the sequel of an interesting case of reflex spasm, caused by dental irritation. He had mentioned the case, two years ago, in the course of the discussion on Mr. Henry Power's paper on "The Relations between Dental Lesions and Diseases of the Eye." The patient, a middle-aged lady, was sent to him, in October, 1883, by Dr. Gowers, with a request that he would examine her mouth, and see if he could discover any probable cause for a spasm of the left eyelid, from which she had suffered for some time. The left upper eyelid was fixed wide open, owing to spasmodic contraction of the levator palpebræ. Mr. Hutchinson found the patient's teeth in a very bad state, both wisdom teeth on the left side being carious; the upper first molar on the same side was decayed, with exposed pulp, and the lower second molar was in the same condition. Mr. Hutchinson extracted these four teeth; but though the patient was cured of the neuralgia from which she had previously suffered, there was not the slightest diminution in the spasm of the eyelid. Soon after this the patient went into the country, and Mr. Hutchinson saw nothing of her for more than a year. When she returned, the eye was in the same condition, and Mr. Hutchinson could find nothing in the mouth likely to be a source of irritation, except the left upper second molar, which contained a large Sullivan's stopping, but which, the patient said, had never given her any inconvenience. With some difficulty Mr. Hutchinson obtained permission to remove the stopping, and he then found a minute exposure of the pulp on which the filling had evidently pressed. The tooth was extracted, and immediate improvement took place in the patient's appearance. At the present time a difference between the two eyes could still be detected on close examination, but it was so slight that it would not be noticed by a casual observer.

Mr. HEPBURN showed, for Mr. Arthur Underwood, a temporary upper molar with a large sequestrum attached, which had been removed at the Dental Hospital from the mouth of a boy between five and six years of age; he had been ill with measles about six months previously. Mr. Underwood had met with a similar case, also consequent on measles, in the course of his practice at the West London Hospital, and he wished to learn whether in the opinion of the members necrosis of the alveolus was a more common sequel of measles than it was generally supposed to be.

Mr. STORER BENNETT exhibited some of Dr. Herbst's instru-

ments and appliances, most of which he had shown at the Cambridge Meeting, including the hand rotation instruments now used by Dr. Herbst for the first packing of the gold, the engine being only employed for the second stage of the process; shields invented by Dr. Herbst for protecting the tongue and cheek when using sandpaper discs, and the bloodstone points for use with the engine.

Mr. BALKWILL, of Plymouth, then read a paper describing a method he had devised of mounting porcelain crowns on pulpless molar roots.

The introduction of the antiseptic treatment of pulpless teeth had allowed of the retention of pulpless roots with much greater confidence than formerly, and several methods of utilising these for the support of a crown had been practised with success. But the most efficient of these, of which the Richmond was one of the best, required so much time and skill for their application that the operation must always remain an exceptional one. The object, therefore, had been to devise a plan which should be comparatively easy.

As the size, shape, and position of the roots of molar teeth forbade the use of stiff pivot wire to fix the crown, this must be in the form of a cap to hold a cement which would retain and support it when hard, and the difficulty was to keep the crown in place until the cement hardened. Messrs. Lemale & Sons had made a crown from his designs which seemed to meet this difficulty successfully. It was of porcelain, about the size and depth of an average natural crown, and hollow, so that when placed upon the root it rested on a thin margin. In the middle of this hollow under the centre of the crown was a second smaller chamber, much undercut, to act as a cavity of retention. In the centre of this cavity a thin platina pin, headed at the free end, was fixed, which protruded sufficiently beyond the under surface of the crown to reach the bottom of the pulp cavity of the root.

The root canals having been first treated and filled, and the stump filed level with the gum, the general surface of the root must be ground concave with the burring engine. A model is then taken. Next a retaining chamber is made in the top of the stump, of the same form as that in the porcelain crown. A crown is now fitted on the model, and then adjusted in the mouth until it fits both root and bite. Some Stewart's Sullivan's amalgam is next made very plastic and divided into two portions, one these being

squeezed as dry of mercury as possible. The retaining cavity of the crown is now carefully filled with some of the more plastic amalgam, and the hollow of the crown with the drier portion, which is packed up to the head of the pin, and smoothed off so as to leave it in the form of a cone. The cavity of the root is next filled with the plastic cement, and a conical pit scooped in this to receive the cone of cement in the crown. The latter is put on and pressed, and then bitten into place, the patient being cautioned not to eat upon it until the next day.

Mr. Balkwill showed specimens of the crown, both separate and attached, and read notes of cases in which he had made use of them, adding that he hoped members would be induced to give them a trial.

A discussion ensued, in which Messrs. Walter Coffin, J. S. Turner, Dr. St. George Elliott, and the President took part, the general opinion being that Mr. Balkwill's plan could scarcely be called "easy of execution," but would require very accurate judgment and careful manipulation. Mr. Balkwill having replied, the President called upon Mr. W. HERN to read his paper on "A Method of Treating Dead Teeth."

Mr. HERN said the method of treatment which he had to bring forward differed but little in many of its details from those commonly practised, except as to the kind of root filling and the method of inserting it. The most common cause of the loss of dead teeth was periodontal inflammation set up by putrefactive changes in a dead pulp. The point to be aimed at in treatment should therefore be the total extirpation of the pulp, and the prospect of success would, as a rule, be increased in direct proportion to the completeness of this extirpation. Another point which would influence treatment was whether the pulp had been purposely devitalized, or whether it had died a natural death and subsequently undergone decomposition, so that the pulp canals were soaked with septic matter. But the difference here was only one of degree, and in both cases the important points in the treatment were as follows :—

(i.) The opening out of the crown of the tooth in a direct, or nearly direct line with the axis of the root.

(ii.) The enlargement of the openings of the canals into the pulp chamber.

(iii.) The enlargement and opening up of the root canals by means of flexible plane-headed drills.

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The direct access to the canals might sometimes be obtained by enlarging the cavity of decay in the direction of the axis of the root, or a second opening through the crown might be necessary, if it was often necessary to do so in the case of molars. The enlargement of the orifices of the canals at their coronal ends was also a very important point, as it greatly increased the facility of manipulation. A pointed fissure bur was the best instrument for the purpose. But he regarded the last point, the enlargement and opening up of the root canals throughout their length, as more important. This enabled the operator to remove from the root more easily the soft tissues, which was to a great extent effected by the action of the drill itself, and also to introduce antiseptic dressings, and afterwards to fill the canals with wax with facility and precision. In those cases in which the pulp had undergone putrefaction the use of the drill effected a great saving of time, since the cutting away of the walls of the canals, saturated with septic matter, greatly reduced the number of dressings required.

The teeth generally might be divided into two classes in relation to the difficulty of dealing with their pulp canals, the most difficult being the anterior roots of lower molars, the buccal roots of upper molars, first upper bicuspid, wisdom teeth, and other normalities; indeed, in some cases it was impossible, on account of the direction or shape of the canals, to remove all the soft tissue.

The canals having been opened up and cleared, the next step was to thoroughly disinfect them. In his opinion, the best antiseptic for this purpose was iodoform. He had not sufficient experience of the effect of bichloride of mercury, which ranked high as an antiseptic agent, and was free from the drawback of iodoform,—its pungent odour. Iodoform could be used alone, or with glycerine or eucalyptus oil.

The next step was filling the canals. The material best suited for this purpose must be antiseptic, non-irritating, easy of introduction, easy of removal, soft and adaptable, yet solid at the body temperature. A mixture of wax and iodoform possessed all these qualities, and was easily made by heating the wax to a plastic condition, then working it up with about half its bulk of iodoform, by means of a stiff spatula. The root canals having been dried and warmed by a current of hot air, a little cotton wool is wound round the end of a broach, dipped into the melted wax and immediately at once inserted in the canal, and pressed into position.

half the length of the root should be filled in this way and the remainder with gutta percha. He had practised this method with the best results for over two years.

In the course of the discussion which ensued, Mr. Latchmore expressed himself in favour of gold as a root filling. Mr. R. H. Woodhouse used carbolic acid and phosphate of zinc in the proportion of one to three; this he worked down to the apex on cotton wool with a fine broach, and filled the upper part of the canal with gutta percha. Messrs. Ackland, Humby, and Hutchinson also took part in the discussion, after which Mr. Hern replied, and the President closed the meeting.

MINOR NOTICES AND CRITICAL ABSTRACTS.

The Earthy Phosphates.*

By Dr. W. C. BARRETT; Buffalo, N.Y.

THE administration of the earthy phosphates to pregnant women and to young children has been a favourite prophylactic method of treatment with many intelligent dentists. The theory upon which this system was founded is, that decayed or defective teeth owe their condition to trophic disturbances, and that it is but necessary to supply the elements missing to produce perfect dentures. This theory is a very plausible one, and it gives loquacious practitioners excellent opportunity to enlarge upon the wonderful process of gestation, and the marvellously interesting double function of the expectant mother, whose digestive apparatus must furnish, not only pabulum to sustain her own physical being during a trying period, but sustenance to the foetal man or woman which she carries beneath her heart. If her own teeth decayed during this period, because of the neglect which at such times is common, she was perhaps treated to long dissertations upon the imperative demands of the growing contents of her uterus, which, not finding the earthy elements needed in the blood with which she supplied it, was robbing her own osseous system to supply its wants. If her teeth were found to be soft, it was because their character had changed, and the lime salts of their crystalline structure had been taken out to build up the young child. Corroborative evidence,

(* Abstract of a paper read before the American Dental Association at Minneapolis, August, 1885.

when looked for with biased judgment, was not lacking, and dentists had many tales to relate of the most stupendous changes effected in the dental development of children through a judicious administration of the lacto-phosphate of lime to the mother during pregnancy. The instances in which such results seemed apparent were cited, while those in which no effect resulted were not included in the category, or were attributed to a want of faithfulness in taking the prescription.

We believe that which we desire to believe, and there is no difficulty in finding apparent confirmatory evidence to sustain the most absurd of postulates, when one sets out with a determination to do so.

There is probably no one who has followed the prescribing of the earthy phosphates for a supposed dystrophic condition, who will not, if his memory be sufficient and his data perfect, call to recollection very many complete failures. If he shall have traced the after-history of children born of mothers who, during pregnancy, were subjected to the phosphatic treatment, he will probably find quite as many with defective teeth as in those who were born under other conditions.

Earlier in my own professional history, I experimented with the different preparations in numerous cases. One of the first of these was that of a lady pregnant with her second child, the first being in a deplorable dental state. The seeming results were surprising. Not only was her own gestation much more pleasant and easy, but the dentition of her infant was almost entirely without the usual febrile disturbances, and the child's teeth, up to the time when I lost sight of him through the removal of the parents, presented a remarkable contrast to those of his elder brother. This case would have possibly confirmed me in the use of the phosphates, were it not that about the same time I had contrary experiences.

In one notable case, that of a lady pregnant with her fifth child, I persuaded her to a thorough course of my then favourite remedy. All the other children had excellent teeth, much above the average. There was no special reason why she should be subjected to prophylactic treatment, except that I thought I saw disastrous effects from her condition upon her own teeth, and because I was pushing the investigation with strong hopes that I had hit upon means by which a perfect dentition might be assured to every child. As time rolled on I beheld the direct antithesis of the first cited case. The child had all manner of difficulty in getting its teeth, and

when they were in place I saw, to my confusion, the only really bad dentition in the family. Of all the women whom I subjected to this treatment, there was not one in which the experience of the lady of the first instance was repeated. Experience alone led me to entirely abandon the practice, and when, subsequently, I made a more thorough study of the physiology of nutrition, I became confirmed in my scepticism concerning the utility of the feeding of phosphates to pregnant women, or even the indiscriminate recommending of such foods as are particularly rich in earthy materials. The facts are against it.

A few years since it was common to hear denunciations of the use of fine flour, from which it was declared that the miller had eliminated all that was of use in the building up of the bony system. Elaborate papers have been read before this Association, in which it was demonstrated to the satisfaction of the really thoughtful and honest essayist, that the decay of teeth, which was supposed to be a modern disease, was due to the lack of phosphates in the fine flour that formed the chief article of subsistence. Since then, computations have been made of the amount of bone-making material that is found in the finest of wheat flour, and of the amount that is needed by both mother and foetus during the period of gestation, and it has been demonstrated that should she subsist entirely upon this article of diet, there would still be an excess of the lime salts. It is a fact that during pregnancy there is almost universally a continual elimination of these principles, which are easily traced in the excretions. Any man, or pregnant woman, who lives upon almost any diet that is sufficient to sustain life, will, if the nutritive organs be in proper condition, find more than is necessary of these elements to keep the osseous system in good condition. It must be remembered that the nutritive changes in the bones and teeth are less than in the other tissues of the body, because they are more permanent in character and structure. Especially is this the case with the teeth, in which the trophic changes are very limited indeed. That such a dystrophy may exist as shall materially affect these organs, no one will probably deny; but the process will of necessity be but a slow one, and the changes will not soon be manifest.

And now let me detail some of the physiological reasons why the giving of the earthly phosphates for nutritive purposes must be a mistaken treatment, and why, to my conception, it is founded upon erroneous assimilative views.

All pabulum must originally be derived from the earth. That is

the primal source of all nutritive material. But there is no order or class in the animal kingdom that can elaborate it. There is no animal organism that can derive nourishment directly from earthy matter. That function rests solely in the vegetable kingdom. Animals are not primal organizers. They cannot digest the inorganic. They require organic structures for their food. But the study of vegetable physiology shows that plants have the ability to assimilate inorganic matter, and out of earthy matter to organize tissue that may serve for the food of the higher orders. When matter has once been organized into vegetable products, it may serve for the sustenance of animals. Some of the animal kingdom subsist solely upon matter but once removed from the inorganic. To this class belong the graminivora. Others of the animal kingdom require that their food shall have been twice organized; first from the earth into a vegetable form, and again by an animal into a higher form. To this class belong the carnivora, who cannot digest or assimilate vegetable organisms until they shall have been reorganized into an animal.* Others are omnivorous, and their digestive apparatus will prepare for nutrition matter that has been but once organized into vegetable life, or that has been again organized into animal existence. To this class belongs man. But neither he nor the graminivora can make nutritive use of inorganic matter, any more than can the carnivora. It follows, then, that if inorganic matter be introduced into an animal organism, it is entirely foreign, and must be eliminated in an unchanged condition. If it remain within the system, it is essentially, and must remain, a foreign substance, an irritant that, if not promptly ejected, will create internal disturbances of a more or less serious nature. All inorganic matter, then, is foreign to the animal system, and so far as nutrition goes it is not only entirely useless, but absolutely mischievous.

Some of the proximate principles of animal bodies are made up mainly of inorganic material, but they never exist as simple substances, unless we may call the iron of the blood a principle. That exists only in a kind of solution, held there by the other constituents, and it is not assimilated directly. The calcium of the bones and teeth exists in combination with other substances, and it is

* It is a rather singular fact that most of the animals that require their food twice organized are unfit for food themselves. Their flesh is rank, unpalatable and innutritious. There are exceptions among fishes and birds, but of the mammalia, the flesh-eaters are themselves uneatable.

never assimilated directly, but it is elaborated, and the combination formed within the system. Carbonate of lime and the phosphate of magnesia are not taken up as such, but the carbon, the phosphorus, the calcium, and the oxygen are elaborated within the organism, and their chemical union is there completed when they are built into the tissues. The building of this animal house of ours cannot be brought about by feeding bricks and mortar. The raw materials must be furnished in other compounds, which it is the province of the nutritive apparatus to disorganize, to separate into their constituent elements, and to recombine into tissues. Every particle of tissue principle must be elaborated within the body, and built up, not from compounds, but from simple elements. If carbonate of lime be needed for the teeth, it is of no use to feed oyster-shells. The system will not take carbonate of lime, but it will elaborate that material from the calcium and carbon and oxygen, which it derives from food, and it will take its carbonate of lime in no other way. It is the same with the phosphates, and hence the inutility of giving any preparation of that material, which will not serve as pabulum. So complete and perfect is this nutritive process in the healthy organism, and so universally and admirably are the elements provided in all organic matter, that a perfect digestion will find in any material that is fit for food, sufficient of the different ingredients to elaborate into pabulum for all the tissues.

Were not this the case, it would be impossible for the different races to exist under all the varying conditions in which they must live. The dweller in the hyperborean regions, where vegetable life scarcely exists, must make a subsistence almost exclusively out of an animal diet. But his whole system is as well nourished as is the omnivorous dweller in the temperate regions. There are those who live upon an exclusively vegetable diet, and none of the tissues are starved. Existence has been prolonged exclusively upon fruits, yet every organ was perfect, because of this universal diffusion of the essential elements of nutrition. The simple substances from which the compound tissues of the body are composed are comparatively few, and are found everywhere. Were it otherwise; were it the case that the organism was unable to elaborate its compounds from the elementary substances; were it the fact that carbonate of lime, and fluoride of calcium, and all the other compounds must be supplied as they exist, it can readily be seen that animals could not subsist upon a simple diet. It would be necessary to supply such foods as contain the exact

compounds needed, and this, except under the most favorable conditions, would be impossible. Hence, but a very small proportion of the earth's surface would be habitable, and most orders of animals would soon become extinct through inability to obtain the exact compounds needed for so complex a nutrition. The laws governing our existence are simple, if we would but consider them intelligently. Animal life can subsist upon almost any kind of organic matter, not absolutely poisonous, and yet be well nourished.

Inorganic matter does, however, play an important part in the human economy, but man is the only animal that makes any extended use of it. Many inorganic materials act as special irritants or excitants to definite organs. Their very presence in the system may induce certain structural or functional changes, and thus in abnormal conditions they may play a useful part. When they are administered for any such purpose we call them remedies, but man is the only animal that makes such use of the inorganic world. Our medical pharmacopœia is largely made up of inorganic matters, and they are given to induce certain changes corrective of others, brought about by dystrophic conditions. If intestinal function ceases through the presence of innutritive or indigestible matter, an inorganic remedy may, by its presence, induce such violent peristaltic action as to eliminate the obstructive matter. Alterative effects follow the ingestion of some inorganic compounds, but it should always be remembered that such inorganic substances are entirely foreign to the organism, and are always extruded at the earliest opportunity. They form no part of the nutrition, and are never built up into the tissues.

It must follow, then, that the giving of the inorganic earthy phosphates for nutritive purposes is always a mistake. If they act at all, it must be remedially, and if they are used they should be intelligently prescribed, like any other agent, and only for their medicinal properties. I have no knowledge that they have any very decided medicinal virtues, and therefore I can see no excuse for dispensing such inert compounds.—*Independent Practitioner*.

The Treatment of Deep-seated Abscesses without External Incision.

By JOHN S. MARSHALL, M.D., Chicago, Ill.

By deep-seated abscesses I mean those cases of alveolar abscess which have extended beyond the ordinary limits, and have involved more or less extensively the structures of the jaw, with a tendency to necrosis, or have penetrated the antrum of Highmore, or escaped from the neighbourhood of the maxilla and have burrowed downwards between the muscles of the neck, as frequently occurs in abscesses associated with the inferior teeth.

Ordinarily the diagnosis of these cases is not difficult, but occasionally the cause has proved troublesome to find. Abscesses discharging into the antrum, or the nasal fossa, and producing offensive discharges, have been diagnosed as chronic catarrh. One case occurring in the practice of Dr. Edward Maynard, of Washington, D.C., caused by an unerupted inferior wisdom tooth, and discharging into the larynx, setting up an irritative cough with expectoration of pus and mucus, was previously diagnosed by the physicians to be acute bronchitis; others discharging at some point upon the side of the neck have been set down as abscesses originating in the cervical glands, the result of scrofula.

That such abscesses often prove to be serious affections, endangering the health, and sometimes even the life, of the individual, are well-established facts.

I purpose, however, in this short paper to confine my remarks to the more common, and, from their location, the more dangerous class of these cases, viz., those originating from disease of the inferior teeth.

The tendency of the suppurative products in these cases is downwards through the external wall of the alveolar process, and to point at the lower margin of the jaw; but it also happens—especially with the molars—that instead of pointing at this location it opens through the internal wall of the alveolar process, and burrows downwards between the muscles of the neck, and may discharge into the throat, or through the external tissues at various points from the submaxillary triangle to the superior border of the clavicle. Any suggestions, therefore, in regard to the treatment of these cases which will tend to cut short the suppurative process, lessen the dangers to health and life, avoid the necessity of operating with the scalpel in a location requiring such delicate

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dissections and fraught with so much risk to the patient prevent the unsightly and oftentimes disgusting scars which the external opening of these abscesses, will I think, be of. The treatment frequently adopted in cases of alveolar is the removal of the cause by the extraction of the tooth, trusting to nature to complete the cure.

In extreme cases of this deep-seated variety an incision through the external tissues at the lowest point of the abscess for the purpose of drainage. In those cases, however, where the abscess has burrowed deeply into the tissues of the neck it is quite probable that more than one pocket will be formed; consequently treatment by incision becomes complicated, and sometimes the dangers of an extended operation in the superior or carotid triangles, would be precluded altogether.

The surgeon, under such circumstances, has had no alternative but to wait, trusting that the abscess would find an opening for itself at less risk, before the patient should die of pyæmia. The treatment which is suggested comes to our relief in this emergency, and from past experience I am prepared to say, at least, that the duration of these cases can be materially shortened, and the patients speedily cured, without resort to any other operative procedure than the extraction of the diseased tooth and the introduction of peroxide of hydrogen into the sac.

Ophthalmologists and aurists have found this agent very useful in the treatment of diseases of the eye and ear, with purulent and muco-purulent discharges, and dentists have been signally successful with it in the treatment of pulp chambers with putrefaction, in ordinary alveolar abscesses and in pyorrhœa alveolaris. By injecting an abscess of the deep-seated variety with peroxide of hydrogen, introduced through the alveolus of the diseased tooth, the purulent contents can be thoroughly evacuated.

The oxygen is set free on coming in contact with the peroxide, and the gas, by its rapid evolution, causes a process of decomposition, which distends the cavity and forces the pus through the alveolus by mechanical pressure. Two or three injections of from a half drachm to an ounce, according to the extent of the abscess, may be required to completely remove the purulent matter, and if given opportunity it will search out and purify every hidden receptacle. I have had several opportunities since its introduction to the notice of the dental profession, and since the late Walter Coffin, of England, at the London International

Congress in 1881,* to test its efficiency in this class of cases and in extensive periosteal inflammations of the jaws.

In one case, a Mercy Hospital patient, Mary N., Irish, aged twenty-four years, had been suffering for several weeks from a deep seated abscess associated with the right inferior wisdom tooth. The patient was confined to her bed for twenty-six days, with pulse ranging from 100 to 116, and temperature from 101° to 104.8°. She was speedily relieved by extracting the tooth and evacuating the pus. The abscess extended down the neck four and a half inches below the margin of the gums, as was ascertained by the probe. The pulse dropped from 104 to 96 and the temperature from 104.8° to 103° within two hours after the operation. A half ounce of the peroxide was ordered to be injected into the abscess every four hours. This was followed by a decrease in the temperature of one degree each day for three days. The patient then refused to submit to the further use of the remedy at that time, as the evolution of the gas, by distending the sac, caused pain. An increase in the pulse rate and an elevation in the temperature immediately followed. On the fourth day afterwards the pulse was 101 and the temperature 104°.

The peroxide was again used as before, and the pulse and temperature again rapidly fell, but through the obstinacy of the patient the treatment could not be carried out with any degree of satisfaction ; still the fact was established that the remedy antisepticated the pus and evacuated the sac, as indicated by the rapid improvement in the symptoms.

Another case was that of a little girl, aged eleven years, with an abscess originating from the right inferior first molar and extending into the tissues of the neck, accompanied with extensive swelling and tenderness, but with no acute pain. The swelling of the parts had followed an attack of severe pain in the tooth and jaw, from which she had suffered three weeks previously. For a week the jaws had been closed, and the only food taken each day was a little milk. The child had been confined to bed for a part of the time, and when presented for treatment looked decidedly ill. The tooth was extracted under ether, and the pus cavity found to extend downwards three inches below the margin of the gum. Very little purulent matter followed the extraction of the tooth, but on injecting the pocket with the peroxide large quantities were

* Transactions of the Seventh International Medical Congress.

evacuated. The injections were continued once daily for six days, when the patient was pronounced cured, all discharge having ceased, and the swelling nearly disappeared. Under the ordinary treatment I should have expected to have seen the trouble continue for a much longer period, and perhaps to have seen the abscess point low down on the neck.

One other case was that of a lad nine years of age, who had received an injury of the inferior jaw by a fall from his bicycle, resulting in an extensive acute periostitis, involving the teeth and jaw from the second temporary molar of the left side to the ramus of the jaw on the right side. All of the teeth between these points were loose; pus exuded from the gums at the necks of the teeth, and I feared extensive necrosis. The treatment adopted was injections of peroxide beneath the gum at all points where pus was found to exude. The condition at the anterior part of the mouth began to improve at once, but opposite the first permanent molar at the lower margin of the jaw it was necessary a few days later to open an abscess which was about to point there. The injections were kept up for two weeks; all discharge had then ceased, and the teeth had become firm.

Dr. Harlan has recently called attention to the use of this agent in purulent conditions affecting the maxillary sinus, and I would suggest that it will be found equally valuable in the hands of the surgeon in nearly every variety of suppurative inflammation, especially in periostitis, necrosis, and deep-seated abscesses, where there is difficulty in completely evacuating the purulent matter by the ordinary means.—*Dental Cosmos*.

ANNOTATIONS.

WE conclude in this number our report of the proceedings at the Annual General Meeting of the Association at Cambridge, but we cannot altogether dismiss the subject without expressing our obligations to the officials connected with the various Colleges, Museums, &c., who kindly devoted a good deal of time and trouble to pointing out the interesting features of their respective institutions. Amongst these we may mention Miss Clough, of Newnham College; Mr. Peskett, M.A., of Magdalen College; the Rev. S. S. Lewis, M.A., of Corpus Christi; Mr. J. Willis Clark, M.A., of King's; the Master of Pembroke College; the Rev. F. J. Foakes-Jackson, of Jesus College; Dr. Donald Macalister, of St.

John's; Mr. J. S. Lyon, M.A., of the University Workshops; Mr. Alexander Hill, M.A., of Downing College, and many others.

THESE acknowledgments are the more called for since in several instances their kind offers were taken advantage of by very small parties—three or four individuals only,—and this meagre response may have appeared to them to betoken a lack of appreciation when in fact it was due, partly to the claims of business, and partly to the number of places of interest from which a selection had to be made.

MOST of these visits to Colleges, &c., had been fixed for Saturday morning, as it was hoped that the reading and discussion of papers would be concluded on Friday afternoon, thus leaving the whole of Saturday available for sight-seeing. This expectation was not realized, and the fact that so many of the members preferred business to pleasure, or found the greater pleasure in business, is clear evidence of the spirit which animates the majority on these occasions.

WE must also say a word on the subject of the "Guide," with which, by the liberality of the Eastern Counties Branch, every member was presented, and which contained not only full particulars of all the arrangements for the meeting, but also a large amount of carefully condensed information on various subjects likely to be useful or interesting to visitors. It might almost be said that it contained everything necessary and nothing superfluous, and certainly did great credit to those who edited it.

THE Annual Dinner of the Past and Present Students of the National Dental Hospital, which is to take place at the Holborn Restaurant on Friday next, the 20th inst., will derive additional interest from the fact that the Chairman will on that occasion make his last appearance as a member of the dental profession.

As most of our readers are already aware, Mr. Oakley Coles has resigned his various offices, and will, at the end of the year, relinquish practice and betake himself to Cambridge to study for the Church.

MR. OAKLEY COLES' services to the Association and the profession at large have been neither few nor small. As editor of the *Monthly Review of Dental Surgery* during a very critical period, he gave valuable support to the cause of dental reform and the improvement of dental education, and after the acquisition of that journal by the Association, his practical experience and business capacity were of the greatest possible service to our Journal Committee, of which he has ever since been an active and useful member.

WITH regard to the Dental Benevolent Fund, it may certainly be said, without in the least ignoring or disparaging the part taken by Mr. Dennant and others, that Mr. Coles' services have been little else than invaluable. We doubt if there is any other member of the profession who would have shown so much and such lasting energy under the discouraging circumstances which characterised the early history of the Fund.

ADD to this that Mr. Coles has been an active member of the Odontological Society, and has been an impartial, or almost impartial, supporter of both the London schools of dentistry, and we think we have sufficiently accounted for the interest with which his public leave-taking is regarded by a large portion of the profession.

WE regret to hear that there has been some uncertainty this year with reference to the Annual Dinner of the Past and Present Students of the Dental Hospital of London. That so large and so invariably successful a gathering should be allowed to collapse is scarcely to be thought of. On the other hand, it must be remembered that to organise a meeting of this kind entails an amount of work, in correspondence alone, of which many of those who attend have no idea; and when this work falls year after year on the same hands, and perhaps comes to be taken rather as a matter of course, it is apt to become a heavy tax.

THERE can be no doubt, however, that the gathering serves a useful purpose, and that it is looked forward to with pleasure, especially by those who have few opportunities of meeting old friends and fellow-practitioners. We hope, therefore, that those

who are familiar with the routine may be induced to take the matter in hand once more, and that in future some fairer division of labour may be arranged.

MR. BLANDY'S Cambridge photographs have, we are glad to hear, given general satisfaction. The smaller group, containing Mr. Tomes, Sir Edwin Saunders, Dr. Smith, Mr. Spence Bate, Mr. James Parkinson, and other well-known members of the profession, is, as we expected, the favourite. Of this, by request, an excellent enlargement has been prepared, measuring 15 inches by 12, which can be obtained for half a guinea. This is relatively much cheaper than the smaller copy, and looks very well when framed. As we stated last month, the profits are to be handed over to the Benevolent Fund.

THE following gentlemen, having passed the required examinations, were admitted Licentiates in Dental Surgery of the Royal College of Surgeons of England, at a meeting of the Board held on the 6th inst. We are happy to be able to add that there were no rejections on this occasion. Richard Baxter Booth, Fentiman Road, Kennington; Edward Pyemont Collett, St. Leonard's-on-Sea; Allan Lindsay Goadby, Henley-on-Thames; Albert Helyar, Southill Park, Hampstead; Louis Jeffery, Campdale Terrace; John Maberly, Keppel Street; Robert May, Sharsted Street, Kennington Park; Harold Murray, Parliament Hill, Hampstead; William Palethorpe, Albert Street; Samuel Edward Pedley, Railway Approach; George Oliver Richards, Bristol Road, Birmingham; Robert Wynne Rouw, Ladywell Park, Lewisham; Louis Edwin Sexton, Portland Square, Plymouth; Tom Gill Williams, St. Margaret's Road, Brockley.

WE hear a good deal from time, especially in the course of after-dinner speeches, about high standing of the dental profession, &c., &c., and perhaps it is as well, lest we should become too much puffed up, that a gentle corrective should be administered occasionally. With this view we would call the attention of our readers to the following extract from the *Times* of the 4th inst. It occurs in the course of a notice of "Kelly's Directory of the Chemists and Druggists Trades of England, Wales and Scotland." The italics are ours:—

"In spite of the general depression of trade, yet chemicals enter so largely into the most necessary and most important industries of the land, that there has been no diminution in the number of persons employed in the chemical trades, and the most recently published statistics of the Board of Trade are quoted to prove that the value of chemical imports shows a slight increase, while there has been an increase of over 25 per cent. in the value of materials exported. This is satisfactory, so far as it goes ; but it must be remembered that the volume before us includes, not only wholesale druggists and manufacturing chemists, but *other subordinate and auxiliary trades, such as patent medicine vendors, drysalterers, perfumers, soda water makers, vermin-destroyers, dentists, and photographers.*"

At the Annual Meeting of the Royal College of Surgeons of Edinburgh held on the 21st ult., Dr. Douglas Argyll Robertson was elected President, and Dr. John Smith, Vice-President. The following were also elected as Dental Examiners :—Patrick H. Watson, M.D., LL.D. ; Henry D. Littlejohn, M.D. ; David Wilson, M.D. ; John Smith, M.D., LL.D. ; Andrew Wilson, L.D.S. ; George W. Watson, L.D.S.

THE Edinburgh Dental Hospital began the winter session on the 2nd inst. with eighteen students, eight of whom were new entries. We should very glad to receive returns from other centres, but from some reason or other we have always found some difficulty in obtaining them.

A CASE of some little interest to the profession was tried at the Liverpool County Court on the 29th ult. A Mrs. Enon sued a Mr. Goodman who practises as a dentist in Bold Street, Liverpool, for £7 10s., and damages for a breach of warranty. Goodman advertises "Teeth, complete set £1 1s., single tooth 2s. 6d. Five years' warranty," &c. The plaintiff went to him, and he agreed to make her a set for £7 10s., which he would guarantee. The set was made and paid for, and a written guarantee given. Three days after, the plaintiff noticed that one of the teeth was chipped. She went to complain, but could not see Goodman. Then the tooth broke off, the plate hurt her mouth, and the "gold strengtheners gave way." She then returned the teeth to the defendant, who kept them and refused either to return the money or make them good. Mr. A. Kirkpatrick, a dentist, gave evidence

that the plate was of inferior workmanship, and not amount paid for it. In the result the judge gave a verdict amount claimed with costs.

At the meeting of the Odontological Society in June Spence Bate and Mr. Hutchinson related cases in which had been successfully treated and preserved. In the number of the *Archives of Dentistry*, Dr. J. C. Harp Louis, relates the following case in which an equally successful result was obtained by somewhat similar means :—

"The patient applied, in May last, for relief from pain in the superior right first bicuspid. The tooth had a small filling on the mesial surface, and a small cavity on the distal surface. At first glance there seemed to be nothing to cause pain, but on examination I found the tooth split from mesial to distal. Drilled into the pulp, devitalised, and found that the tooth was loose at the roots. During treatment I kept a ligature on the tooth to keep the two parts from separating. When the tooth was in a proper position to fill, adjusted the rubber dam and placed on the tooth a vertical bicuspid clamp which held the parts very firmly together. Then I filled the cavity, making a dove-tail in each cusp ; filled the roots in the same manner, letting the liquid gutta-percha flow into the split at the bottom of the cavity ; filled the cavity with gold, being careful not to wedge the parts asunder. This tooth was, no doubt, fractured upon some hard substance which acted as a wedge in the space between the cusps. In finishing the filling I left the surface U-shaped as a protection in the future. I saw the patient in July, and she said the tooth had been comfortable ever since it was filled."

We have not made any further reference of late to cocaine for dental purposes because we think that we had almost enough of individual experiences. What is required is that some one should carefully sift and compare somewhat contradictory opinions which have been published, and if possible reconcile the differences. On the whole the balance seems favourable, and the failures may in many cases be accounted for.

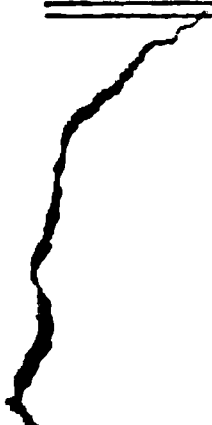
We have received from Mr. E. A. Cormack, of Edinburgh, notes of cases in which he has used the citrate of cocaine first recommended by Mr. Brunton. He states that he

it with "entire success,"—only one failure having occurred, and in that case the cavity was in a very inaccessible position, so that he had great difficulty in introducing the preparation and in excluding moisture. Since then he has always used the rubber dam or napkin, and a mastic plug, and the results have been uniformly successful. He finds that the greatest success is obtained in the teeth of nervous excitable people, and where there is rapidly progressing caries.

ONE explanation of the failures which have occurred with cocaine when used as an obtundent for sensitive dentine is the very insufficient interval allowed for its action. Mr. Cormack finds that the time required to obtain a satisfactory result varies in different people from ten or fifteen, up to twenty-five or thirty minutes. When applied to soft tissues, as the mucous membrane of the gum, absorption takes place more rapidly. We should be glad to hear whether any of our readers have tried the combination of cocaine with arsenic for devitalising the pulp, as suggested by Mr. Quinby, and with what results.

FROM the recently published Calendar of the Royal College of Surgeons of England we learn that during the past academical year the Dental Board of Examiners held two meetings [and examined 24 candidates, of whom 17 obtained the diploma. The receipts of the College from this source were £178 10s., out of a total income of £25,866. The number of fresh licentiates admitted only just balanced the deaths, so that the number of names on the list is 553, exactly the same as last year.

AT the next meeting of the Odontological Society of Great Britain, which will take place on December 7th, Mr. Frederick Eve, F.R.C.S., Curator of the Museum of the Royal College of Surgeons, will read a paper on "Some points in the Pathology of Cystic and Encysted Tumours of the Jaws." Several interesting Casual Communications have also been promised.



CORRESPONDENCE.

Compulsory Attention to the Teeth of School Children.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION.

SIR,—In the paper, recently given at Cambridge by Mr. Fisher, I have to call attention to the use of an expression which I consider calculated to excite feelings of no friendly nature among members of the profession. The expression referred to is "curriculum qualified dentist."

Dental practitioners in this country, at the present time, may be divided into three classes or grades: 1st. Those who have qualified by attending the full curriculum. 2nd. Those who have gained the diploma by the *sine curriculo* examination. 3rd. The legally qualified or registered dentists, which embraces the whole profession. I need hardly say that men of great ability and weight in the profession are to be found in the second and third classes here mentioned, but Mr. Fisher evidently considers them quite unqualified to fulfil the duties proposed in his new legislation.

Mr. Fisher is a member of an association which has for its object the advancement and elevation of the profession, and I think it extremely to be regretted that he should have made use of such an expression, which I venture to hope he will find it convenient to withdraw, as it cannot be palatable to the majority of his professional brethren.

I am, &c.,

A MEMBER OF THE B.D.A.

*** We regret that our correspondent should feel aggrieved at the expression referred to, and can assure him that it was not used in a spirit of unfriendliness or self-aggrandisement. It is of course a fact that there are many practitioners having either a *sine curriculo* diploma or no diploma at all, who are as well qualified professionally as any of those who have gone through the regular course of instruction; but it is also notorious that there are not a few in both classes who, although *legally* qualified members of the profession, are from a professional point of view very imperfectly qualified, and quite incompetent to hold any important public appointment. ^{Assuming} that these appointments must be in the hands of lay committees can have very imperfect means of judging of the technical knowledge and skill of the candidates who may apply to them, we can suggest no better mode of preventing, as far as possible, the selection of incompetent men for such posts than by limiting the field in the way Mr. Fisher suggests. We would

remind our Correspondent also that a very similar rule holds good with regard to medical appointments. A Fellow of a Medical or Surgical College is not necessarily a better practitioner than a Member, yet the latter is usually ineligible for the holding of hospital appointments. As regards our own profession, it is some consolation to know that these invidious, yet sometimes necessary distinctions, will in time become things of the past.—ED.

A Casualty in Tooth Extraction.

TO THE EDITOR OF THE "JOURNAL OF THE BRITISH DENTAL ASSOCIATION."

SIR,—With reference to the case recorded by Mr. Daniel Browning, L.D.S.Eng., under the above heading in the last number of the Journal, I cannot help making one or two remarks. If Mr. Browning had used an upper stump forceps,—Read's for instance,—instead of an elevator, he would not have had the misfortune to remove, or even displace, the bicuspid. Mr. Browning, in his report of the case, does not say anything about the second bicuspid. Was it present? I presume not, or it would surely have come away and not the first bicuspid.

The elevator should never, in my opinion, be used for the extraction of any tooth in the upper jaw, as so many accidents are liable to occur. If the instrument should happen to slip in the extraction of either the first or the second molar, it would probably penetrate the antrum; whilst in removing an upper wisdom tooth the tuberosity is very likely to be fractured. The elevator should only be used for teeth or stumps in the lower jaw, and more particularly, lower wisdom teeth; the fang or fangs of these teeth always curve backwards, and so are easily unhooked with this instrument.

This, at least, is the experience of

Yours, &c.

AN L.D.S. WHO HAS HELD A HOSPITAL
APPOINTMENT FOR MANY YEARS.

CORRIGENDUM : On p. 619 of the last number of this Journal, 4th line from top, for *author* put *editor*.

TO CORRESPONDENTS:—

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &c.

HOSPITALS.	DENTAL SURGEONS.		ASSIST. DENTAL SURGEONS.	DAY AND HOUR OF ATTENDANCE.		ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewhank ; Mr. Paterson	Mr. Mackrell; Mr. Ackery ...	Daily at 9 a.m.	Mr. Mills.
Charing Cross	Mr. Fairbank ...	...	...	Monday, Wednesday & Friday, 9 a.m.	...
St. George's	Mr. Winterbottom ...	...	...	Tuesday, 9 a.m....	...
Guy's	Mr. Henry Moon ...	...	Mr. F. N. Pedley ...	Tuesday and Thursday, 12.30 noon	...
King's College	Mr. S. H. Cartwright ...	...	...	Tuesday and Friday, 10 a.m. ...	...
The London	Mr. Ashley Barrett ...	...	...	Tuesday, 9 a.m....	...
St. Mary's ...	Mr. Howard Hayward...	...	...	Wednesday and Saturday, 9.30 a.m. ..	...
Middlesex ...	Mr. Bennett ...	...	Mr. C. Rogers	—	...
St. Thomas's	Mr. Ranger ...	...	Mr. Chas. Truman	Tuesday, ...	...
University College...	Mr. Hutchinson...	...	...	Wednesday, 9.30 a.m....	...
Westminster	Dr. Walker	Mr. Smale ...	Wednesday and Saturday, 9.15 a.m.	Mr. Bailey. Mr. Bird. Mr. Mills. Mr. Braine. Mr. Bird. Mr. Bailey. Mr. Glassington. Mr. Tyrrell. Mr. Hewitt. Mr. Winslow. Mr. Tyrrell. Mr. Winslow.
London Dental	Mr. David Hepburn ...	...	Mr. W. Hern...	Monday, 9 a.m....	...
"	Mr. R. H. Woodhouse...	...	Mr. Arthur S. Underwood ...	Tuesday, 9 a.m....	...	
"	Mr. Gregson ...	...	Mr. Claude Rogers ...	Wednesday, 9 a.m.	...
"	Mr. Storer Bennett	...	Mr. George Parkinson	Thursday, 9 a.m.	...	
"	Mr. Henry Moon	...	Mr. Lawrence Read ...	Friday, 9 a.m. ...	...
"	Mr. F. Canton ...	...	Mr. Truman ...	Saturday, 9 a.m.	...
National Dental	Mr. Henri Weiss	...	Mr. Willoughby Weiss	Monday, 9 a.m....	...	
"	Mr. Alfred Smith	...	Mr. Giles Bradshaw ...	Tuesday, 9 a.m....	...	
"	Mr. G. J. Williams	...	Mr. Marcus Davis ...	Wednesday, 9 a.m.	...	
"	Mr. A. F. Canton	...	Mr. H. G. Read	Thursday, 9 a.m.	...	
"	Mr. T. Gaddes ...	...	Mr. Scott Thomson ...	Friday, 9 a.m. ...	...
"	Mr. Harry Rose...	...	Mr. W. R. Humby ...	Saturday, 9 a.m.	...	

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, December 18th, at 5.30 p.m.; Committee of Management, November 16th, at 5 p.m.; Medical Committee, November 19th, 5 p.m.

Odontological Society of Great Britain.—Monday, December 7th, Council, at 7 p.m.; General Meeting, at 8 p.m.

British Dental Association.—Representative Board, Saturday, December 5th, at 3 p.m.; Publishing Committee, November 26th, at 5.30 p.m.

Members who have changed their address during the year, or who have obtained fresh qualifications or appointments, are requested to send notice of the same to the Secretary at 40, Leicester Square, in order that they may be correctly described in the List of Members which will be published at the end of the year.

All Correspondence for the Editor, Books for Review, and Exchange Journals should be addressed to 40, Leicester Square, London, W.C.

THE JOURNAL
OF THE
BRITISH DENTAL ASSOCIATION
A
MONTHLY REVIEW OF DENTAL SURGERY.

No. 12.

DECEMBER 15, 1885.

VOL. VI.

An Extinct Licentiate-ship.

THE lengthy discussion by the Medical Council as to the treatment of a dead licentiate-ship, the once owner of which still lives, will be read with interest, and perhaps with feelings of regret. For the powers and the wisdom of the Council, as an executive body, do not appear in that strong light of excellence we could have wished to have seen them.

It may be premised that the Council has no power either to create or to destroy a qualification. It is entrusted with the Registration only of qualifications which other bodies have called into existence. But if it sees reason to believe that qualifications have been given to persons who possessed an insufficient amount of knowledge, it may, with the sanction of the Privy Council, decline to enter them in

the *Dentists' Register*.* Here, so far as regards qualifications the Council's power ends. It can, however, under Section 13 of the Dentists Act erase the name of a person "who has been guilty of any infamous or disgraceful conduct in a professional respect," and inasmuch as Section 11 of the said Act requires that the *Register* shall contain the name, address, and qualification in full of a person, the removal of the name will be followed, as a purely secondary consequence and as a matter of course, by the removal also of the address and of the qualification, with the latter of which the Council has not dealt and cannot primarily deal, unless it has been incorrectly or fraudulently entered in the *Register*.

In the case in point the Council was not asked to erase a name, but was officially informed that a certain qualification entered in the *Dentists' Register* had ceased to exist, and as this qualification was the only one connected with a particular name, it followed, as a consequence provided for in the Act, that the name unsupported by a qualification should be discontinued in the Register. The legal bearings of the case were clearly pointed out by Mr. Farrer, the Council's solicitor, first in writing, then verbally to the meeting, at which he was present. His advice was not accepted, the members preferring to talk on and on upon side issues about advertising, and the like. At last, after a great and generally admitted waste of time, it was decided to fall back upon the clause of the Act requiring that in cases of a proposed erasure of a name, or an entry which has been incorrectly or fraudulently made, the facts should be found by the Dental Committee. So the case was referred to the Dental Committee for the finding of facts, with the *whole* of which facts the Council had already been made officially acquainted.

* Dentists Act, Sections 23-4.

The Committee can but report that the Licentiate-ship in question has ceased to exist, has been put an end to, quashed as the lawyers would call it, and has wholly disappeared from the College list of Dental Licentiates; or else it must constitute itself into a court of inquiry, proceed to examine the provisions of the charter of the Irish College, and sit in judgment on the manner in which they have been carried into effect by the College authorities in respect of this particular case. We can find no grounds whatever for the assumption of this judicial position, in either the Medical or the Dental Acts—certainly not in the latter—and the College may resent an unauthorized inquisition which carries with it the suspicion of wrong-doing, a suspicion which no verbal denial can in any way obscure.

Last year,* the Faculty of Physicians and Surgeons of Glasgow, reported to the Council that a licentiate-ship had been surrendered, and the associated name struck off from the list of Dental Licentiates of the Faculty, and the Registrar forthwith was instructed by the Executive Committee to erase from the Dental Register the annulled qualification. It so happened that the interested person had a second qualification with which his name remains connected on the Register. But whether he had one, two, or three qualifications, was no concern of the Council, which was asked in its executive capacity to remove a qualification that had ceased to exist, and whether any other remained or not when the one had been removed, did not affect the question of its removal. The payment of a debt cannot be excused on the ground that the debtor will be left without money, and, therefore, without the means of carrying on business as he had done before the payment of the debt was insisted on. Yet the arguments used against the removal of a forfeited qualification admit of no better excuse than

* Minutes of Medical Council, Vol. 21, page 300.

the plea of inconvenience to the person who has lost the Licentiate'ship under conditions to which he had agreed on receiving it.* The Council is in no sense responsible for the loss, but it is in the highest degree responsible for a correct *Register*, and the continuance in its pages of a qualification which has ceased to exist must be accounted a serious fault; while even the dallying with the case cannot be regarded otherwise than with deep regret.

If wrong has been done, redress must be sought of the Irish College, which is alone responsible for quashing the qualification. Should the College see fit, it can grant a new licentiate'ship to the sufferer, but it is beyond its power to bring into existence that which has ceased to exist, or to make a person a Licentiate during a time when he was not one, and the insertion in the *Dental Register* for 1886 of an Irish qualification which is not to be found in the lists of Dental Licentiates which the College of Surgeons in Ireland, under Section 18 of the Dentists Act, is bound to keep, will not constitute a qualification. As well might there be included in the new list of representatives those who sat in the last Parliament, but who failed in the present election to secure a seat. The Dentists Act requires that even the loss of an address shall be followed by the withdrawal of the name and qualification in the next published *Register*, an annual issue of which is provided in order that those entries in the last issue which have from death, changes of residence, or other causes, become incorrect, may be corrected and published

* Of those practitioners who obtained licentiate'ships of the Scotch or Irish Colleges before the closing of the *Register* to unlicensed practitioners, on August 1, 1879, all could, and a certain number of them did, register both "as in practice before July 22, 1878," and as licentiates. And the respective dates entered in the *Register* show that in many cases the licentiate'ship was possessed at the time the entry of "In practice before July 22, 1878," was made.

in a new volume, the issue of which renders null and void all previous issues of the *Register*. If the legislature had not deemed corrections absolutely necessary, the new entries might have been made public by the annual publication of a supplementary list, and thereby much expense spared.

Dr. Banks and Mr. Farrer did their best to bring the Council back to the simple and obvious reading of the Act, but all their efforts signally failed. Singularly enough the Scotch case of an annulled licentiateship, which occurred in November of last year, if not wholly forgotten, was not cited by any of the speakers.

It has been remarked that the Medical Council generally comes in the end to a just decision, though the way by which it reaches the desired goal is too often long and intolerably wearisome.

The Association, having no further duty to discharge, can well afford to await the result with patience and equanimity. It has been, and ever will be, called upon to discourage by all honourable means, the use of trade-advertisements by professional men, and the objectionable practice may, by the pressure of professional opinion, be kept within certain bounds ; but it would be Quixotic to suppose that the habit will be wholly abandoned either in our own or in any other profession.

A Year's Progress.

ALTHOUGH twelve months may form an insignificant portion of time in the history of an Association at present young in years, but destined we hope to outlive not only the lives of its founders and the youngest of its present members, but many generations following them, yet it is only by estimating the apparently meagre results of each following year, that the total of actual progress

can even in a vague way, be estimated. The history of such a body as the British Dental Association, commencing in what may be termed a state of professional chaos, and in the face of much opposition both from within and without the ranks of our profession, must necessarily be one of turmoil and strife, and the records of our progress afford abundant proof of this; but amidst all the noise of battle, and what might have been the shouts of victory had the victors been vain enough to shout, the whole body of members have never lost sight of the fact that the education of the profession is one great, if not the very greatest object of the organization to which they belong. The papers and demonstrations brought before our Branches and at our Annual General Meetings speak to this fact, and if our readers care to look back through the volume of our Journal for the past year, they will see that a large portion of its pages have been devoted to the consideration of Educational subjects both at home and abroad.

The meetings of our Branches and the eminently successful Annual General Meeting at Cambridge, furnish abundant evidence of this cheering fact, and the noteworthy circumstance that the majority of our leading articles during the by-gone year have had the same bearing, are additional proofs that the highest objects of our Association are asserting themselves even at this early stage of our history. Doubtless our record must for a long time be that of a struggle for existence, and our Journal must needs contain matter which, though not generally interesting, must of necessity be recorded in the legitimate and indeed the only depository of our growth; still the facts adduced show that even now its pages are beginning to assume a more satisfactory aspect, and we trust that in the coming year they may, with the active co-operation of our members be made yet more acceptable to our readers. The advantages and disadvantages of legal proceedings are beginning to be better understood, both by the members and the executive of the Association, and although we have in this issue to place on record the commencement of a legal process of primary importance to the profession generally,

yet it is obviously undertaken not with the view of hunting down an insignificant individual offender, but for the purpose of obtaining an authoritative declaration on a certain point in the Dentists Act. When this and a few other points are settled, we may expect the "way of transgressors" to be very hard indeed.

On the whole, the retrospect of the Association for 1885, is, we think, more than satisfactory in a political and social aspect and full of encouragement for the future.

The retrospect of the scientific work that has been achieved during the year which is now drawing to its close, cannot fail to prove gratifying to all who are interested in the progress of our profession. Although we cannot boast of any great discovery or record any signal triumph, the amount of solid work done has been beyond the average of recent years. The landmarks of our professional knowledge have been moved forward all along the line, and in every department of the science and art of dentistry some successes have been scored. Perhaps the most gratifying reflection we have to make,—the most certain evidence of positive progress we have to note—is the greatly increased number of those whose good work falls within the retrospect of the year. For some time the scientific reputation of our profession has rested under the fostering care of a few men of very great ability, who may be almost said to have created the science they studied. It must be with pleasure, not unmixed with pride, that those of these veterans of dental science who are still with us observe the awakening voice of a new generation of explorers, a generation that is educated and earnest enough to be trusted to carry on the work that had been so well begun.

In the domain of surgery, we notice with pleasure some very sound and careful papers on the very important subject of the care of the teeth during childhood, commencing with an investigation into the subject of the "Prevention of Irregularities," by Mr. Brownlie, of Glasgow, a paper of very high order indeed; Dr. Marshall, of Nottingham, has also contributed to the general fund of

knowledge a very interesting essay on "Nutrition in early life as affecting the Teeth." Moreover, a case published in our July issue, by Mr. Austin Biggs, of Glasgow, forms an excellent illustration to Mr. Brownlie's paper. Later on in the year we have a very careful analysis of the periods of eruption of the permanent teeth from the pen of Dr. Livy, and we shall look forward shortly to perusing in print Mr. Wentworth White's capital paper on "the First Permanent Molars," read at Cambridge. Finally, the paper by Mr. Fisher, of Dundee (which we published in our October issue), on the "Compulsory Attention to the Teeth of Children," does credit to its author. He describes very graphically the result of an extended examination of the teeth of the poorer classes in Scotland, and the evils resulting from wholesale neglect; he points out the absurdity of the present rule which excludes boys from the navy on account of dental defects, when such defects might in most cases be so easily prevented or remedied by proper care. His suggestion of a scheme of compulsory dental attention is neither impracticable nor unpractical, and we heartily wish he may succeed in bringing the authorities round to his view of the case.

Various plans for dressing and preserving the roots of teeth, the pulps of which have perished, have engaged the attention of a good many explorers during the year. First and foremost, one of our veterans in science, who we hope will never tire of enriching the literature of the profession—Mr. Spence Bate—has contributed a paper on "Excision *versus* Extraction," which is full of good sound practical common-sense from beginning to end. His plea for the rational treatment and the preservation of roots is unanswerable, and no doubt conservative surgery will endeavour more and more to preserve as much as possible the natural conditions of the alveolar ridges.

Mr. Stirling, Mr. Elliott (of Birmingham), Mr. Hern and Mr. Balkwill have all read papers upon the question of roots and their treatment, all of them throwing valuable light on the subject by the faithful record of experience,

while much has also been elicited of value from the various discussions that have ensued.

In the region of pathology the work done has been quite as good as elsewhere. Our March and April numbers contain three papers that form a very complete little group, materially reflecting light upon each other, namely, Professor Turner's paper on "The Relation of the Alveolar Cleft to the Incisor Teeth and the Inter-maxillary Bones," Mr. Andrew Wilson's paper on "The Missing Incisors in Man," and Mr. Oakley Coles' paper on "Congenital Fissure and its Accompanying Dental Conditions." The discussion in these papers turns upon the incisor formula in man and the relation of the incisors and canines to the inter-maxillary fissure, whether the missing tooth is I^2 or I^3 . All these authors endorse Paul Albrecht's view that it is I^2 which is missing, and not as is generally held to be the case I^3 . The anatomy and mutual relations of the incisive bones has certainly advanced a step, thanks to the scholarly investigations of these authors. A different view is, however, taken by Dr. Edwards, of Madrid, who, in a paper which we publish in our present issue, suggests that the suppressed teeth were the original centrals, and adduces some ingenious, but, as it seems to us, not very conclusive arguments in support of his hypothesis. We wish space would permit us to discuss the question at greater length.

Dr. Miller, of Berlin, has given us the benefit of further painstaking elucidations of the manners and customs of micro-organisms. The precision and delicacy of his experiments reflect the highest credit upon him, as does his untiring industry.

Mr. Bland Sutton has shown us that the pathology of the jaws may be amply illustrated from among the brute creation. A great deal has been said about the merits of cocaine, but we still wait for an exhaustive treatise on the subject.

The Herbst method of gold-filling continues to attract general attention. Messrs. Storer Bennett and C. S. Tomes have taken up the question more than once during the year, but the excellent little handbook on gold-filling from

the pen of Herr Herbst himself is, of course, the principal contribution upon this subject.

In anatomy pure and simple we have to record an ingenious disquisition by M. Malassez, on the life history of certain epithelial products in the alveolar region.

Dr. Galippe has produced a thorough and exhaustive work, in which the chemical composition of the teeth is carefully and completely worked out. The book is full of original matter, and previous to its appearance we did not possess anything of the kind to compare with it for completeness and exactness. We shall hope to furnish our readers with an epitome of this work very shortly.

Dr. Arkovy, of Budapesth, has produced an elaborate treatise upon differential diagnosis that may fairly be said to leave no corner of the question undiscussed.

Microscopical anatomy has not been forgotten. Mr. Frank Harrison has discussed elementary tissue preparation, and Mr. Arthur Underwood has described, at Cambridge, some new anatomical minutiae that will be shortly published in our pages.

Wherever we look we find steady and even progress: new names are associated with the old familiar ones, and more are rapidly coming on to join the ranks. But we can ill spare our old hands yet, and we cannot but view with selfish regret the transference of the untiring energies and busy brain of Mr. Oakley Coles to another sphere of work. There is no one who knows Mr. Coles but will heartily miss him from the field of his old labours. But those who will miss him most are the few who know the large amount of work that he has done for the profession behind the scenes. Among the most valuable services that Mr. Coles has rendered the profession are many of an unostentatious nature—work for which little credit is obtained, and the greater part of which only a few fellow-workers know anything about. We trust, however, that the change of profession Mr. Coles is about to make will not deprive us of the benefit of his assistance and co-operation from time to time.

ASSOCIATION INTELLIGENCE.

The Representative Board.

THE Representative Board met at 40, Leicester Square, on Saturday the 5th inst., Mr. J. S. Turner, Vice-President, occupied the chair, and the following members were present:—Sir Edwin Saunders, Messrs. Charters White, Jas. Parkinson, Ashley Gibbings, A. J. Woodhouse, Morton Smale, S. J. Hutchinson, Storer Bennett, Thos. Gaddes, C. S. Tomes, and F. Canton (Hon. Sec.), of London; with Messrs. W. H. Waite (Liverpool), H. Blandy (Nottingham), G. Brunton (Leeds), S. Wormald (Stockport), R. W. White (Norwich), H. Champion (Manchester), R. F. H. King (Newark), C. Sims (Birmingham), G. Cunningham (Cambridge), and J. Dennant (Brighton).

A communication from Mr. John Tomes, President of the Board, was read.

Messrs. Rait and Kearton were re-elected auditors of the Association.

The Treasurer reported that there was a balance at the bank of £493 3s. 9d., and that fifty-four members were in arrear with their subscriptions, twenty owing for two years. The Treasurer was instructed to pay the Cambridge accounts.

Dr. WAITE gave notice that at the next Annual Meeting he would move that No. 8 of the Articles of Association, referring to the election of Fellows of the Association, be put into force, and the Business Committee was requested to take the matter into consideration.

The Hon. Sec. reported that several cases of infringement of the Dentists Act were under the consideration of the Business Committee, but were not yet in a sufficiently advanced state to bring before the Board.

The Business Committee was empowered to carry out the details of the arrangements for the next Annual Meeting in London.

Votes of thanks were passed to the different authorities at Cambridge for their courtesy and support during the Cambridge Meeting.

SIR EDWIN SAUNDERS presented to the Board an enlarged and framed photograph of the group taken by Mr. Henry Blandy at Mr. R. White's Garden Party, at Cambridge.

The resignation of Mr. Alfred Coleman, of New Zealand, was received with regret, and his name was mentioned as suitable for election as a Fellow.

A considerable amount of other business was also brought under the notice of the Board by different members.

West of Scotland Branch.

THE Annual Meeting of this Branch took place at the Faculty Hall, Glasgow, on the 11th ult., Mr. W. S. Woodburn, President, in the chair. There was a good attendance.

The West of Scotland differs from the other Branches of the Association in holding regular monthly meetings from September to April, the Annual Meeting differing from the others only in the presentation of reports from those entrusted with the management of affairs, and the election of office-bearers for the year.

The business commenced with a ballot for six additional members, all of whom were elected, and the nomination of three more to be balloted for at the next meeting.

Reports were submitted by the various officials, all of which were considered satisfactory, and the following appointments were made for the ensuing year:—*President*, Mr. W. S. Woodburn; *Vice-President*, Mr. Jas. Cumming; *Treasurer*, Mr. John Melville; *Editor of Transactions*, Mr. J. R. Brownlie; *Librarian*, Mr. Alex. B. Young; *Secretary*, Mr. W. F. Martin, *Council* (in addition to the above) Messrs. Jas. McCash, J. A. Biggs, Rees Price, and D. R. Cameron.

The President then delivered a short address tracing the rise and progress of the wave of reform which had swept over the profession, breaking down the barriers which had hitherto separated its members, and which in the course of but a few years had led to the Dentists Act, the British Dental Association with its Branches, and its not less desirable Benevolent Fund.

It was announced that at the next meeting papers would be read by Messrs. Cumming and Melville, and the meeting closed with the usual vote of thanks to the Chairman.

ORIGINAL COMMUNICATIONS.

The Necessity for Teeth after Fifty Years of Age.

By S. J. HUTCHINSON, M.R.C.S. & L.D.S.Eng.

DENTAL SURGEON AND LECTURER IN UNIVERSITY COLLEGE HOSPITAL, AND LECTURER ON DENTAL SURGERY AND PATHOLOGY IN THE LONDON SCHOOL OF SURGERY ; LATE DENTAL SURGEON TO THE DENTAL HOSPITAL OF LONDON.

THE title of this paper would seem to suggest a self-evident fact, and any enlargement thereupon to be superfluous, were it not that in the May, 1885, number of the *Nineteenth Century* an article by Sir Henry Thompson was published containing some rather startling statements which have produced a marked effect, and which appear to require some consideration at the hands of the members of this Association.

The article here referred to was entitled "Diet in relation to Age and Activity," and in the June number of the JOURNAL OF THE BRITISH DENTAL ASSOCIATION, there appeared an Annotation which very briefly disposed of the sweeping assertions contained in Sir H. Thompson's essay. But, gentlemen, it will be necessary to give an extract from this article, in order to meet point by point its somewhat sensational condemnation of the aid rendered by dental surgeons in replacing the lost organs of mastication.

The author certainly qualifies his phillipic by approving references to the aid which the dental art renders to "vocal articulation," and to "personal appearance," but he apparently condemns root and branch the need of masticatory adjuncts after the age of fifty years! Thus, to quote as follows:—

"Another agent in the combination to maintain for the man of advancing age his career of flesh-eater is the dentist. Nothing is more common at this period of life than to hear complaints of indigestion, experienced, so it is affirmed, because mastication is imperfectly performed for want of teeth. The dentist deftly repairs the defective implements, and the important function of chewing the food can be henceforth performed with comfort. But without any intention to justify a doctrine of final causes, I would point out the significant fact that the disappearance of the masticating powers is mostly coincident with the period of life when that species of food which most requires their action—viz., solid animal fibre—is little, if at all, required by the individual. It is during the latter third of his career that the softer and lighter foods, such as well-cooked cereals, some light mixed animal and vegetable soups, and also fish, for which teeth are barely necessary, are par-

ticularly valuable and appropriate. And the man with imperfect teeth who conforms to nature's demand for a mild non-stimulating dietary in advanced years, will mostly be blessed with a better digestion and sounder health than the man who, thanks to his artificial machinery, can eat and does eat as much flesh in quantity and variety as he did in the days of his youth.

"Far be it from me to undervalue the truly artistic achievements of a clever and experienced dental surgeon, or the comfort which he affords. By all means let us have recourse to his aid when our natural teeth fail, for the purpose of vocal articulation, to say nothing of their relation to personal appearance: on such grounds the artificial substitutes rank among the necessities of life in a civilised community.

"Only let it be understood that the chief end of teeth, so far as mastication is concerned, has in advancing age been to a great extent accomplished, and that they are now mainly useful for the purposes just named. But I cannot help adding that there are some grounds for the belief that those who have throughout life from their earliest years consumed little or no flesh, but have lived on a diet chiefly or wholly vegetarian, will be found to have preserved their teeth longer than those who have always made flesh a prominent part of their daily food."

The comments on this passage in our own Journal were very apt. They pointed out *first* that although many suffer from the effects of such a dietary of much meat, it is equally certain that many would suffer seriously by the continuance of such a regimen as that recommended, viz., vegetables and fish, with little meat and less alcohol (or none at all); secondly, that such an article is likely to do as much harm as good to the lay reader; and thirdly, the statement that because artificial teeth enable old people to eat much meat (which is bad for them), therefore they had better be toothless or only use teeth for appearance and articulation, entirely leaves out the fact that other food besides meat requires efficient mastication, and that its absence would be extremely detrimental to all but those exceptional individuals endowed with vigorous digestion, lasting unimpaired to the end of life.

It is my object now, therefore, gentlemen, to point out reasons beyond those advanced above for the need of teeth after fifty years of age, and the necessity for their careful preservation, and I think the most important omission is that of the great difference in constitution of various patients, for whilst one man will, upon

a very spare diet, and fair amount of exercise, soon aggregate a large amount of fat, another with liberal diet, and no exercise at all, will to the end of his days, be one of Pharoah's "lean kine."

Another point entirely left out of consideration is that of anatomical construction, because if it were true that man is intended to live entirely or chiefly upon vegetable and farinaceous food, then his teeth would assimilate more closely to the frugivorous and ruminant type; neither is he purely carnivorous or his dentition would be more carnassial in type. I am not aware of any proof that the ideal man loses his teeth by decay or loosening in old age.

Again, civilization is a factor which is apparently ignored, and men of the present day are educated up to a standard where it is known to an ounce how much nitrogenous food, how much fat, and how much of carbo-hydrates should be taken to keep up a bare subsistence. I am well aware that it is the abuse of all these things against which Sir Henry Thompson inveighs so eloquently, but to say that teeth are not necessary to chew the food, is an exaggeration which I do think requires our earnest attention. I maintain that it is the often long interregnum of imperfect mastication between the ages of twenty-five and fifty, which sows the seeds of the ailments which accrue in the last third of a man's life, rather than the inordinate amount of meat which is eaten after the age of fifty, which is supposed to be so comfortably disposed of by the aid of artificial teeth. I maintain that it is the neglect of proper care of the teeth, and the probable presence of imperfect and painful teeth on one side of the mouth in many cases, which leads to the dyspepsia and all its train of evils. We have also to remember how often on examining a mouth we find a fair number of teeth, at the age of fifty, but on close inspection we find perhaps that there may be good upper teeth on one side, with no antagonists in the lower, and on the other side good lower teeth and no upper ones to meet them. Here, again, is a condition of things which sows the seed of plenteous ills, when an active life becomes less vigorous, and the digestive powers of the stomach no longer counteract the imperfectly performed function of the teeth, and inefficient mastication is followed by indigestion.

And how often, indeed, do we find with a fairly good, or even a complete natural denture, that the patient suffers from indigestion, and what is the cause? It is this, in three words, *bolting the food!* The patient seems to think that because he has good teeth he

need not chew his food! Time and again have I met with this condition of things, and I have had to answer the question: "Can you tell me why I suffer from dyspepsia? You say I have splendid teeth, but how is it?" The answer is simple enough, "You do not masticate your food."

Then, again, it must be admitted that it is an exaggeration to say that during the latter third of life, or after fifty, less meat is needed. Would it not be better to say that when active occupation, be it mental, physical, or both combined, becomes lessened, that then is the time for somewhat modifying the diet? And would it not be a help to one's patients to tell them that the better they preserve their own teeth, and the sooner they have deficiencies supplied, the longer will they be able properly to chew, and properly to digest the proper amount of food in its right proportion.

This is a fitting time to quote Dr. Pavy, and the proper proportion of food for man according to measured statistics. Thus, a man of medium height and in moderate work requires daily 300 grains of nitrogen and 4,800 grains of carbon; and this is yielded, nearly, by 2 lbs. of bread and $\frac{3}{4}$ lb. of meat, that is, 44 ozs. of solid food, of which one-fourth consists of animal matter. Now, if only lean meat were eaten, about 6 lbs., or a leg of lamb, would have to be eaten to get the proper amount of carbon, but there would be an excess of nitrogen. Again, if bread only were taken, the amount needful would be about a 4 lb. loaf to give enough nitrogen, but this would have an excess of carbon, in fact twice too much. One's imagination quite fails to realise the average Briton munching a whole 4 lb. loaf in the day without teeth, and the condition of his stomach during the process of excretion of all this food is impossible to imagine, seeing that the salivary action is needful to prepare this kind of food for digestion in the stomach, for every text-book extant on the subject says that saliva turns starch into grape-sugar. And I would here just ask you, gentlemen, one question, the answer to which I consider to be an answer to the whole subject, "What is the condition of the stomach with regard to its sensations after a hearty meal of any kind (except liquid food), hastily swallowed and imperfectly masticated, compared with one's feelings after a quiet meal, leisurely eaten, thoroughly chewed, well mixed with saliva?" The answer, gentlemen, need not be spoken, it is simply the difference between war and peace.

Now let us briefly discuss the meaning of this outcry against

nitrogenous food, and first let us consider what feeding does. Feeding is now no longer to be looked at as the mere stoking of an engine, for, as Playfair says, the analogy is false, for "There is (in man) an incessant transformation of the acting parts of the animal machine, which forms the condition of its action, while in the steam-engine it is the transformation of fuel *external* to the machine which causes it to move."

Mattieu Williams says: "Our bodies are alive throughout, and perform all the operations of working, thinking, and feeling by virtue of self-contained, inherent vitality, and they thus consume our substance, replaced by new material, the quality depending on manner of working, and manner and matter of replacement." This, of course, is in a state of health, and diseases may mean either the excess of wrongly chosen aliment or the failure of means of excreting it, and here a very curious paradox is observable. It has been found—

1. That the *consumption* of nitrogenous food is proportionate to work done.
2. The *elimination* of nitrogen is not proportionate to work done.
3. The elimination of nitrogen is proportionate to consumption of nitrogenous food.

This supports strongly the theory that nitrogenous food in excess is a mistake, but it equally points out the fact that a certain amount of nitrogenous food is *needful* to keep up the animal economy, and it is therefore most urgent that this food should be administered in such form that it may most readily be assimilated without giving undue work to the glandular excretory functions. I venture, therefore, to maintain that the administration of animal food in proper proportions with vegetable diet is the most philosophical as well as physiological method of keeping up the animal economy, and I am also of opinion that this nitrogenous food ought to be taken in its most tempting and purest form, and not necessarily in its most concentrated condition. But at the same time I would equally insist that the greatest safeguard to preservation of the bodily health, is by a proper mastication of those articles of food which are necessary to the support of the animal frame, and it is quite certain that much disease would be avoided by a wise exercise of these simple rules.

When disease has stepped in our dietary must be modified, but if only our food was eaten slowly, and thoroughly chewed with

properly arranged natural or artificial grinders, we should do much to eradicate the fell diseases which stalk in our midst.

A great deal is made of the treatise of Luigi Cornaro, who lived in Venice in the middle of the 15th century, and who lived to be over one hundred years of age. He planned a dietary for himself and diminished the amount of food as he grew older, but instead of taking two meals a day he took four; he ate all kinds of food, animal as well as vegetable, and he drank the light wine of the country in small quantity; all this is quoted on page 791 of the *Nineteenth Century* for May; but on pp. 786-787 of the same Review we find a complaint entered against the loving wife, who, when she finds her lord takes less food at his meals than formerly, tries to help him by introducing "snacks" between the usual meals, such as beef-tea or egg and sherry. All this is condemned as so much poison, whereas one would be inclined to think that smaller meals supplemented in the way named would be a help rather than the reverse.

But there is a fashion in all these things, and things are changing every day. What is to be thought of the latest teaching with regard to beef-tea? For the last fifty or a hundred years, or ever since beef-tea was first mentioned by physicians, we have been taught that the proper way to make beef-tea is so-and-so, but we have all been taught to throw away the beef after the tea is made, or give it to the cat; but now, lo! all this is changed, and Dr. William Roberts, of Manchester, at the British Medical Association, at Cardiff the other day, said, (p. 191 of the *British Medical Journal*,) "the meat remnant contains the real nutriment, and if beaten to a paste with a spoon and flavoured with salt, &c., forms a highly nourishing and agreeable, and also highly digestible form of food," and I believe him.

Dr. Roberts also says:—"Due mastication and cooking of the food are essential to easy digestion, and perfect cooking is most important in the case of farinaceous articles and fresh vegetables."

Another new theory I must be allowed to mention, though it is foreign to our subject, because I do not agree with it. In the August number of our Journal an article from the *British Medical Journal*, by Dr. John Livy, is quoted, in which he says:—"The tannic acid found in tea, exerts a similar (decaying) chemical effect upon the teeth." This cannot be true; it is contrary to all theory and practice hitherto taught and accepted. Tannin certainly does the & cause or increase caries, but on the other hand it will harden the decaying surface of a carious tooth.

I agree with Mattieu Williams, who says:—"It is modern scientific fashion, rather than scientific progress, that I oppose. We have too much of this millinery spirit in the scientific world just now, too much eagerness to run after the last thing out, and assume with undue readiness that the latest researches are of course, the best, especially where fashionable physicians are concerned."

To return to our subject. I wish again to refer to the text books, for they tell us some interesting facts which bear on the point.

1st. In the stomach, animal food is more completely digested than vegetable food, is retained longer, appeases hunger more completely, and is more stimulating.

2nd. Vegetable substances leave the stomach with their texture only partially destroyed, and the less easily digested are but little affected till they reach the ileum, though previously fully exposed to the gastric, biliary and pancreatic fluids.

3rd. Fats and oils are most difficult of digestion.

I have only now to quote a few statistics on the various digestibility of different foods, and it will be seen that the majority of them do require to be masticated first in order that the stomach may be able to exercise its functions to the greatest advantage.

Tripe, is in a healthy stomach digested in ... 1 hour.

Eggs, salmon, trout, and venison in ... $1\frac{1}{2}$ "

Milk, liver, fish, other than above ... 2 "

Turkey and lamb ... $2\frac{1}{2}$ "

Beef ... 3 "

Mutton and fowls ... $3\frac{1}{2}$ "

Veal and pork ... 4 or 5 "

Rice ... 1 "

Tapioca and barley ... 2 "

Potatoes ... $2\frac{1}{2}$ "

From the stomach, starch, fat, and oil pass unchanged, and together with any amylaceous and saccharine matters which have not been acted on by the saliva and gastric juice, are reserved for the action of bile and pancreatic fluid.

It is, however, worthy of comment that certain undigested portions of the food mixed with residuum of bile forms the natural stimulus to the peristaltic action of the intestines, so that an excess of undigested or ill-digested matter will produce diarrhoea, and the absence of all indigestible matter—the result of over-refined cookery, causes constipation.

The waste products of nitrogenous food are chiefly carried off in the shape of urea and uric acid in the urine, and these are increased by animal food and decreased by vegetable food. It is therefore only in certain diseases, that a decided lessening of animal diet is called for, and as every patient who is over fifty years of age does not suffer from excess of uric acid, it is not needful for everyone over fifty years of age to lessen his supply of animal food to the starvation point, or he will rapidly suffer in other ways than from gout or rheumatism! Of course the liver is also deranged by an *excess* of animal food. On the other hand, starchy and saccharine matter taken with albuminous and fatty matter cause accumulation of fat to a serious extent, and used alone in excess, they lead to acidity of the stomach and flatulence.

The statement that the constant eating of meat leads to premature loss of the teeth is made by Sir H. Thompson, and I propose to give a brief resumé of a paper by the late Mr. Mummery in the *Odontological Transactions*, Vol II., new series, which will show how far this statement is borne out by the condition of the teeth of various nations, savage and civilised, in comparison with their diet.

<i>Nation.</i>	<i>Diet.</i>	<i>Teeth.</i>
Arctic Regions	Animal chiefly, much fat.	} Caries. 1 in 34
Greenlanders	do.	
Icelanders	do.	
North American Indian Coast ...	Buffalo meat exclusively	1 in 28
Ditto Interior ...	Meat and roots ...	} 1 in 11
Oregon Indians	Meat and salmon, putrid	
Mexico (the old)	Vegetables chiefly ...	} 1 in 4
South Americans	Mare's flesh, no bread,	
Pampas Indians	fruit or vegetables...	
Guachos	Beef	No toothache
In towns, eat stews, &c., and have much caries.		
Australia (native)	Meat and fish ...	1 in 5
Tasmania	Mixed	1 in 4
New Zealand	Vegetables, meat & fish	1 in 33
Friendly Islands	Vegetables chiefly, but meat too ...	} 1 in 10
Otaheite	Mixed diet, 9-10ths vegetables ...	
Figi	Human Flesh, Pigs, Cocoa nuts ...	
		} 1 in 19

<i>Nation.</i>				<i>Diet.</i>		<i>Teeth.</i>
Sandwich Islands...	...	...	...	Fish, vegetables, hogs,	dogs	} 1 in 7
China	...	...	...	Animal and rice	...	
Japan	...	...	...	Rice and mixed diet...		1 in 3
India	...	...	...	Rice...	{ North South	1 in 14 1 in 7
Ceylon	...	...	...	Vegetables and rice		...
Nubia	...	...	...	Animal	...	splendid teeth
Abyssinia...	...	...	...	Raw meat	...	...no decay.
Tartars	...	...	...	All meat	...	...no caries.
Ancient Britons	...	Dolichocephalic	...	Meat entirely		1 in 34
"	"	Brachycephalic	...	Mixed	...	1 " 5
"	Canon Greenwell	...	...	Ditto	...	1 " 2
"	Miscellaneous	...	...	Ditto	...	1 " 5
Romano Britons	...	...	...	Ditto	...	1 " 5
Anglo Saxons	...	...	...	Ditto	...	1 " 6
Ancient Egyptians	...	...	...	Ditto	...	1 " 2
West Coast Africans	...	...	...	...	Maize	1 " 4
East Africans	...	...	...	...	Flesh	1 " 4
Kaffirs	...	...	...	...	Milk	1 " 8
Bosjesman	...	...	...	...	Roots, &c.	1 " 5
Hottentots	...	...	...	Raw meat	{ chiefly Very little decay.	
				chiefly		

It does not appear, therefore, that the statement as to the eating of meat being a cause of loss of teeth can be supported, though it is quite impossible to compare savage tribes living a vigorous outdoor life with the civilized inhabitants of Europe. And I do not think there is any sufficient evidence to prove that it is even necessarily a condition of civilization, that the teeth should of themselves fail in advancing years. I, therefore, contend in conclusion, that a duly proportioned diet of animal and vegetable food, in proper quantities, and at due times, slowly eaten, properly masticated and quietly swallowed, is the ideal diet for all but those who have entered actually into their second childhood, a condition of things happily not often witnessed until after seventy-five years of age, and the conclusion, therefore, forces itself upon us that good teeth, real or artificial, *are* necessary after fifty years of age, or in the last third of the usual span of life, for other purposes than appearance and articulation.

REPORTS OF SOCIETIES AND OTHER MEETINGS.

The Odonto-Chirurgical Society of Scotland.

THE first meeting of the Session, 1885-86, took place at the Society's Rooms, 30, Chambers Street, Edinburgh, on Thursday the 12th ult., Mr. W. Bowman Macleod, L.D.S.Edin., President, in the chair.

After the usual formal business had been transacted, Mr. Macleod rose and made a few remarks in acknowledgment of his election to the Presidential chair. It had generally been the custom to open the session with an inaugural address, but most of the general retrospective topics upon which he could have founded such an address had already engaged their attention, and at present there was no subject on the tapis which specially affected them as a Society. Under these circumstances he deemed it better to withhold a speech, since there was nothing more tiresome and profitless than listening to a man who had really nothing to say. He had not, however, been forgetful of his duties, but had, with the assistance of their excellent secretary, endeavoured to make provision for a full programme at the meetings. A goodly supply of material had already been secured, and if this was supplemented by the average number of cases in practice and other casual communications, they would be able to look back upon a pleasant and profitable session.

He then called upon Mr. Lipscomb for a communication on two "cases in practice" lately under his treatment.

Mr. LIPSCOMB said he had nothing new to bring before the meeting that evening, but merely a case or two in practice that he hoped might be found of general interest, and be the means of producing a short discussion. The first was one of the non-eruption of an upper wisdom tooth.

Case No. 1.—A gentleman about forty years of age called upon him, complaining of a nasty taste in his mouth, especially when he awoke in the morning. He had been troubled for about two years. He found that his health was suffering a good deal in consequence, and that he was getting weaker every day; there was, however, comparatively no pain. He had consulted his doctor at intervals during the two years, but with no beneficial results. On examining his mouth, Mr. Lipscomb found his teeth in good order, but the upper left wisdom tooth missing. As the patient stated that

he did not think he had had a tooth extracted from that position, the cause of the trouble was very easily diagnosed, viz., that it was the discharge from this fissure from which he had suffered so long, and which was the occasion of the unpleasant taste complained of. A free incision was then made up to the alveolus, and plugged well up with cotton wool saturated with a weak solution of carbolic acid. He was going to London on business that night, so Mr. Lipscomb directed him to call upon his friend, Mr. David Hepburn, and get the cotton wool renewed, which he did, Mr. Hepburn, telling him that he could then just feel the crown of the tooth imbedded in the alveolus. He returned a few days after, and Mr. Lipscomb succeeded, after some considerable difficulty, in removing the tooth, the reasons of which difficulty would be very obvious to any one examining the tooth, as the roots were largely exostosed, and there was the danger of breaking away the posterior wall of the superior maxilla to be borne in mind—a by no means impossible accident, considering the porous nature of the bone. The wound was dressed for a few days with solutions of chloride of zinc and carbolic acid alternately, and a tonic prescribed. He soon began to put on flesh and gain strength and had made a complete recovery.

Case No. 2.—There had lately appeared in the *British Journal of Dental Science*, a case of replanting, by Mr. G. H. Goodwin, of Derby, which was briefly as follows:—He removed a first bicuspid, so as to enable him to extract a second bicuspid stump that had been troubling a medical friend of his, the first bicuspid being replanted after the removal of the stump had been effected, and so far it had been a success. But surely it would have been more satisfactory if Mr. Goodwin had left this case for a few years before putting it before the profession, to see that it was going to be a *permanent* success. Mr. Lipscomb did not himself believe in replanting, although he was about to quote a case that he had had four years ago, and the tooth at the present moment was quite firm, and very serviceable.

A young farmer, aged about twenty-two or twenty-three, called on him to have an upper lateral extracted. It had caused him great pain for some days. The tooth was very little decayed, but somewhat loose, and the gum inflamed, but not tender. He said that a month or so before, he had run against the point of a friend's umbrella and hurt the tooth, but it had got well in a day or so. Mr. Lipscomb extracted the tooth, cleaned it, and after soaking

it in a warm solution of carbolic acid, replaced it, tied it to the central and canine, and sent the patient away almost free of pain. He called two days after, said he had suffered no pain, and the tooth was getting quite comfortable. A week after, the tooth was comparatively firm, and within a few weeks the thread was taken off, and he had had perfect use of the tooth since.

There were some other similar cases which Mr. Lipscomb had had, but he wished to give them a year or two's trial before bringing them before the Society.

The first of these two cases was the occasion of some considerable discussion, the general experience being that while impacted lower wisdom teeth were of comparatively common occurrence, the same trouble in the upper jaw was much rarer.

Mr. CAMPBELL said about a year ago he extracted, after a good deal of trouble, an unerupted wisdom tooth, the details of which he thought worth mentioning in connection with Mr. Lipscomb's interesting case. The patient, a lady aged forty-nine, had suffered from neuralgia more or less severely, on the right side of her head and face, for five years. For two or three months before she came under his care, her suffering had been very great. She had consulted several medical men, but without relief. He (Mr. Campbell) knew the lady's husband, who spoke to him casually about his wife's great suffering. He suggested an examination of her mouth, which was acted upon, but the teeth appeared to be perfectly sound. He noticed, however, that the right upper wisdom tooth was missing, and, from the fulness of the gum, did not seem to have been extracted. On inquiry, he found the patient had never had a tooth removed from the upper jaw. From the symptoms, and the appearance of the mouth in the region of the upper wisdom tooth, he came to the conclusion that this tooth was not erupted, and the probable cause of all the patient's suffering. After consultation with the family doctor, who happened to be an eminent surgeon, it was agreed to put her under chloroform and examine the state of matters. This was done, and when the alveolus had been cut through, the instrument came upon the enamel of the wisdom tooth. Being now fully assured of its presence, he proceeded to extract it, but never before experienced so much difficulty in removing a tooth from its socket. The tooth in front, and a part of the alveolus surrounding the wisdom tooth, which proved to be extremely dense, was removed, and even then it was with considerable difficulty that the tooth was at last ex-

tracted, having to be literally gouged out. The tooth had been slightly attacked by caries, but there was nothing to account for the serious symptoms exhibited ; while on the other hand, as a result of the chronic irritation, the root had a remarkably thick coating of exostosed cementum, terminating at the neck of the tooth in a strongly pronounced fold. The patient of course suffered a good deal for a week or two after the operation, but had since been quite free from pain.

The PRESIDENT then read a paper entitled, "The Missing Incisors in Man. Which are they?" by Mr. H. H. Edwards, D.D.S., of Madrid, which will be found at p. 725. It was illustrated by nine drawings of models, and also a model of a supernumerary incisor carved in ivory, for which latter production Mr. Edwards was especially complimented on his skilful handiwork.

As the paper was one which required some amount of thought, it was considered better to postpone the discussion upon it until the next meeting, by which time the paper would be in the hands of the members.

The PRESIDENT then proposed that Dr. Edwards should be elected as a corresponding member of the Society, and that a vote of thanks should be accorded to him for the labour and trouble he had been to in order to bring the matter under their notice, both of which propositions were carried *nem. con.* ; and the Secretary instructed to communicate the same to Dr. Edwards.

Mr. WILSON exhibited models of two cases (both uppers) having relation to Dr. Edwards' paper.

In the first there were, on the right side, a central, a geminated lateral (two laterals), and a canine, all temporary ; on the left, a permanent central, with a lateral and a canine, both temporary. The central had succeeded a geminated tooth (central and lateral). In the second, the second premolar on the left side was represented by a rudimentary tooth whose crown was hemispherical. On the opposite side the temporary tooth was still in place.

Mr. STIRLING exhibited the molar of a horse, the roots of which were involved in an odontome of some considerable size.

Mr. CAMPBELL exhibited a first bicuspid with two very divergent roots, in this latter respect more resembling a temporary molar, also some thin tapering rolls of gutta percha for filling roots, especially useful for the pulp canals of canine teeth ; although not new, he wished to draw the attention of the members to some of the advantages to be derived by employing them.

The PRESIDENT announced that the next meeting would be held on Thursday, December 10th, at 7 o'clock, at which hour it would continue to be held during the current session.

The National Dental Hospital Dinner.

THE Annual Dinner of the Past and Present Students of the National Dental Hospital took place at the Holborn Restaurant on Friday, the 20th ult. Mr. Oakley Coles presided, and close upon a hundred gentlemen were present, the meeting being regarded as a formal leave-taking of the Chairman on his retirement from the profession.

After dinner, "The Queen and Royal Family" having been given by the Chairman, Dr. MORELL MACKENZIE proposed "the Dental Societies" in an amusing speech.

Mr. J. S. TURNER, in responding for the Odontological Society, spoke of the long and intimate connection of the Chairman with the Society. It was a flourishing society, and it was an honour for any one in the dental profession to belong to it. It was well worthy of the attention of the younger members of the profession, and he was surprised that there were so many who did not belong to it. They could scarcely be aware of the great advantages to be derived from its membership, nor of the fact that it was mainly owing to the self-denying labours of its early members that the dental profession had been raised to its present elevated position. He thought that a man was scarcely entitled to consider himself a member of the profession until he had joined one of the societies which had been established for the upholding of its rights and privileges, and the advancement of the knowledge of their specialty.

Mr. F. CANTON said that whilst the societies referred to by Mr. Turner were doing good work in furthering the scientific progress of the profession, the British Dental Association, for which he had been called upon to respond, aimed at the advancement of its political interests, and this was a matter of the greatest possible importance to every member of the profession at the present time. He would say to the younger members that it was their first interest to join the British Dental Association, even before the Odontological Society, for the Association was formed for the maintenance of that by which they hoped to gain their living, and

it was by them, the younger men, that the work which had been begun by the older practitioners must be carried on.

Mr. HENRI WEISS returned thanks on behalf of the Odontochirurgical Society. The Odontological was, of course, looked up to as the mother society, but it could scarcely be expected that gentlemen should come from North Britain to attend its meetings, and therefore it was highly satisfactory to have a society in Scotland, having over seventy members and doing so much useful work for the extension of dental science.

Mr. JAMES STOCKEN then proposed "The Staff of the National Dental Hospital and College," to which Mr. WILLOUGHBY WEISS replied, Dr. GEORGE CUNNINGHAM following with the toast of "The Medical and Dental Schools." He complimented the National Dental Staff on the fact that their teaching went beyond the bare requirements of the curriculum. They had lectures on Operative Dentistry, Dental Materia Medica, and Elementary Histology, and suggested that a course on the Treatment of Irregularities, which was recognized as a special subject in American dental schools, would be a useful addition.

Dr. STEPHEN MACKENZIE having replied for the Medical Schools, and Mr. THOS. GADDES for the Dental, the Chairman proposed the toast of "Past and Present Students." He himself belonged to the former class, having been a student of the College some five and twenty years ago. Having referred to the great change in dental education which had taken place since that time, he said he should wish to see one dental school for London, but many dental hospitals. The teaching of dental students should be conducted by men who could devote the whole of their time to that particular work, and it was only here and there that a really good teacher could be met with. Under the present plan it was impossible for anyone to do what was expected of him in the way of hospital work, and teach thoroughly at the same time. The dental hospitals of London should be multiplied, but there should be one central school, which would, he believed, take the first place amongst the educational institutions of the metropolis.

Mr. R. ROGERS, of Cheltenham, replied for the Past, and Mr. E. C. FISK for the Present Students.

Mr. F. WEISS proposed the health of the Chairman. He considered it a great pleasure and privilege to be permitted to say that he had enjoyed the friendship of the Chairman for over twenty years, and that he highly appreciated his sterling worth,

his great ability and, above all, his remarkable perseverance. Since 1867, when he joined the Odontological Society, Mr. Coles' name had been familiar to the whole profession, and during that time he had read papers and written books relating to all departments of dental science. It was rare to meet with a life of so much industry and usefulness. Nor had he expended all his energy in literary efforts. He had resuscitated the institution with which they were connected at a time when it was in a very enfeebled condition. He did not for one moment believe that a man of so much activity had come to the end of his career, it was but the termination of one chapter and a change in the direction of his labours. Whatever his walk in life might be, it was certain to be a useful one. In thus terminating his professional life, surrounded by the students whom he had helped to educate and the colleagues with whom he had worked, he would be assured how cordially they all responded to the toast, and how heartily they desired that health and prosperity might attend him in his future career.

Mr. COLES, in reply, thanked Mr. Weiss for the kind way in which he had spoken of him, and the company for the enthusiastic reception they had given to the toast of his health. In leaving the dental profession, he considered he was only entering upon an extended field of usefulness. The words which he had heard from Mr. Weiss, and the expressions of good feeling from all that evening, would stimulate him to greater exertions in the future. It showed him that any faithful service done to one's fellow-men was never forgotten by them.

"The Visitors," proposed by the Chairman, and responded to by Messrs. Jas. Parkinson and William Rose, concluded the list of toasts.

The proceedings were varied by some capital songs and recitations.

The General Medical Council.

THE General Medical Council met on the 17th ult., for its promised autumn session, and sat for five days. The only Dental Business on the Agenda was the correction of the Dentists' Register by the erasure of the entry of a diploma which had been cancelled and withdrawn by the Irish College of Surgeons, and an application by the British Dental Association for leave to prose-

cute an alleged offender against the Dentists Act. The Council contrived, however, to get a considerable amount of not very edifying discussion out of both these apparently simple matters, as will be seen by the report given below, which as our space is valuable, we have endeavoured to compress into as small a compass as possible.

THURSDAY, NOVEMBER 19th.

SIR HENRY ACKLAND, M.D., President, in the Chair.

Dental Business.—The following communications were referred to the Council by the Executive Committee in regard to a Licentiate of the Royal College of Surgeons in Ireland, registered on December 20, 1878 :

(a) From the ROYAL COLLEGE OF SURGEONS IN IRELAND.

Dublin, July 4, 1885.

SIR,—I am directed by the PRESIDENT and COUNCIL to inform you that they have, by resolution at their Meeting on July 2, 1885, withdrawn the Diploma of Licentiate in Dental Surgery granted by them to Mr. H. F. PARTRIDGE.

I am, Sir,

Yours faithfully,

A. H. JACOB, F.R.C.S.I.,

Secretary of the Council.

To the REGISTRAR of the
GENERAL MEDICAL COUNCIL.

(b) From the EXECUTIVE COMMITTEE'S *Minutes* for July 10, 1885.

Resolved:—(a) That the REGISTRAR be directed to make application to the Royal College of Surgeons in Ireland for information as to the cause of the withdrawal of the diploma in question ;

(b) That the question as to the action of the COUNCIL in respect to the removal of such qualifications from the *Dentist's Register* be referred to Mr. FARRER for his opinion thereon.

(c) From the ROYAL COLLEGE OF SURGEONS IN IRELAND.

Royal College of Surgeons in Ireland,

Dublin, July 22, 1885.

DEAR SIR,—Referring to your note of July 21, I am to inform you that the President and Council of this College have withdrawn the Diploma of Mr. H. F. PARTRIDGE, because of his having, in violation of his undertaking given to the College, resorted to advertising in connection with the Ladies' Dental Institution, South Kensington.

A. H. JACOB,

Secretary of Council.

(d) From the SOLICITOR to the COUNCIL.

66, Lincoln's Inn Fields, London, W.C.,

August 8, 1885.

SIR,—With regard to the case referred to in the Dental *Minutes* of the EXECUTIVE COMMITTEE of 10th July last—H. F. PARTRIDGE—I am clearly

of opinion that it is the duty of the REGISTRAR to keep his *Register* correct, and this he cannot do if the name of a person whose sole qualification is withdrawn is allowed to remain thereon. It is no necessary part of the business of the Committee to inquire the cause of such withdrawal, and I think they are quite within their powers in directing you to remove the name from the *Register* (the qualification being gone), although not expressly so directed by the Act.

W. J. C. MILLER, Esq.

Yours faithfully,

FREDERICK W. FARRER.

The PRESIDENT : Is any motion made on these communications ?

Mr. MACNAMARA : I move "That the Qualification of Mr. H. F. PARTRIDGE, Lic. Den. Surg., R. Coll. Surg., Irel. 1878, be removed from the *Dentists' Register*, the same having been recalled by the College."

Dr. SCOTT ORR seconded the motion.

Mr. COLLINS : I presume the regulations we have just passed with regard to medical practitioners will not apply to dentists and that these cases will not be referred in future to the Branch Council.

The REGISTRAR : No regulation has been made in the Standing Orders about dentists, the Act being a recent one.

Mr. COLLINS : I wish to remind the Council that the regulations with regard to medical practitioners are now being revised, and to ask whether these regulations will be extended to dental practitioners.

Dr. QUAIN : With a view of raising this question, I should like to move that advertising is not a sufficient cause for withdrawing a name from the list of the Royal College of Surgeons in Ireland ; for surely a dentist is more of a tradesman than a medical practitioner, and can advertise if he likes.

Dr. CHAMBERS : The advertising is in connection with the Ladies' Dental College.

Dr. QUAIN : It seems to me that this is monstrous. By entering into this question and interfering with the actions of the Corporations, see what mischief we get into. We are bound to decide whether the cause alleged is a sufficient cause or not. We have to state whether we think that the dentist should be removed from the Register because he has advertised.

Dr. DUNCAN : It is because he has advertised in violation of his undertaking.

Dr. QUAIN : The question is whether the College has a right to require such an undertaking. The question was raised the other day. This shows the anomalous position in which we are placing ourselves from the very absurd practice of our inquiring into the causes why these Corporations think proper to remove the qualifications of certain people. Here we are brought face to face with the difficulty: is this a sufficient justification for removing the name from the Register,—because the man has advertised ? I do not want to enter into the merits of the case, but I want to point out the difficult position in which we are placed already. We have to inquire into the causes of removal. Mr. Simon says that we have to come to a vote and say whether we think fit to remove the qualification from the Dental Register of a person because he advertises. If that is done it will affect a great number of persons. It is a great pity, and I think it is a false step that the question has been raised at all.

Dr. DUNCAN : I approve of this man's name being erased, whether he advertises or not. That is not the point, it is because he has violated the undertaking he has given to the College.

Mr. MACNAMARA : I did not intend to occupy the time of the Council by any observations, for it seemed to me that Mr. Farrer's letter puts the matter in a nutshell, and that there was no necessity for my making any lengthened remarks. But I want to state that each gentleman when he comes up has, amongst other things, to sign an undertaking that he will not advertise, and that if he does advertise he is to give up the license of dental surgery conferred by my College. I take it, with all due respect for Dr. Quain, that he has no business to call in question the regulations of my College.

Dr. QUAIN : Hear, hear.

Mr. MACNAMARA : You may question it as much as you like. This is the case before us : we have cancelled the license ; the man is not on our Register ; his name is erased from it, and it is—in language which is quite Parliamentary, for I believe Lord Iddesleigh said it—“a good thumping lie” to put his name on the General Register stating that he is a Licentiate of the Royal College of Surgeons in Ireland when he is not. You cannot do it. You may leave him on the Register as much as you like, but you must erase the qualification of Licentiate in Dental Surgery of the Royal College of Surgeons in Ireland.

Dr. A. SMITH : This case which has unexpectedly sprung up is, as far as I can understand, identical with the case which was brought before the College the other day. It will be remembered that I moved, and that Dr. Banks seconded, a motion to the effect that the name of a Licentiate in midwifery and medicine whose name had been removed from the list of the College of Physicians in Ireland should be removed from the Medical Register, but the Council declined to act on that motion. Since that matter was before us, I have found a record of three cases in which this Council struck out names without going into any inquiry as to the reasons. The first case is that of “Robert Jacob Jordan, registered as Member of the Royal College of Surgeons, England, 1859, Licentiate of the Royal College of Physicians of Edinburgh, 1859. His qualification of Member of the Royal College of Surgeons of England, 1859, erased by order of the General Council on the 26th of May, 1863, in consequence of his name having been removed from the list of Members of the Royal College of Surgeons of England ; moreover, on the 4th of May, 1864, it was further ordered by the General Council that his ‘name and qualification, as Licentiate of the Royal College of Physicians of Edinburgh, be removed from the Medical Register.’” There is the case of a man whose qualification was removed without any inquiry as to the reasons. This Council did not attempt to go into the conduct of the affairs of the bodies concerned, who acted according to the inherent rights conferred upon them by their Charter. The Council will remember that when I was asked the other day to state the reasons for the removal of a name, I declined to state the grounds. The second case was that of “Robert Abercrombie, registered as Member of the Royal College of Surgeons of England, 1847, Licentiate Apothecaries of London, 1848. His qualification of Member of the Royal College of Surgeons of England, erased on the 2nd February, 1866, by order of the Executive Committee, in consequence of his having been removed

by the Council of that College from being a Member." Then there is the case of "Robert Gray, registered as Licentiate Royal College of Surgeons, Ireland, 1865, Licentiate Royal College of Physicians, Edinburgh, 1867, Licentiate Society of Apothecaries, London, 1869, Licentiate Apothecaries Hall, Dublin, 1869, Licentiate and Licensed Midwife, 1873, King and Queen's College of Physicians, Ireland, in consequence of his name having been removed from the list of Licentiates of the King and Queen's College of Physicians in Ireland." That case is identical with the one that was before us the other day. I cannot see anything to justify the Council putting on trial any of the Corporate Bodies as to the exercise of their own rights, and the conduct of their own private affairs. It was insinuated the other day that the College might have acted on illegal grounds, but I repudiated the charge, and I say now that it was utterly groundless to assert that the action of the College was taken in consequence of the practitioner having adopted any special theory in medicine or surgery. The College exercises its rights according to its own standing orders. When I return to my College, which I have had the honour of representing at this Council for twenty-seven years, I shall advise them not to give the Council a particle of information in regard to this question in addition to what they have already received.

Mr. SIMON: I rise to a point of order. If I understand the Act, this motion of Mr. Macnamara's must be referred to the Dental Committee, who will then report to the Council. I think that is clear. It is a motion to erase a name from the Register.

Mr. MACNAMARA: It is a motion to erase the qualification of the College of Surgeons in Ireland from our Register.

Mr. SIMON: I beg your pardon. I understood that the name was to be erased.

Dr. HUMPHRY: As the motion stands it is for the removal of the name.

Mr. MACNAMARA: I have not written it out yet. It should be the removal of the qualification. In the few remarks that I made I said that you may leave his name on the Register if you like, but you have no right to leave the qualification conferred by the College of Surgeons in Ireland, inasmuch as the College has cancelled it for whatever reason it chooses. Then will arise a very serious question. This man was not in practice in accordance with the Dental Act previous to the passing of that Act, when he could, as an act of grace, have got on the Register. That not being so, I do not see how you can leave his name on the Register. The qualification by which he got on has been taken away, and it is a nice point whether we can leave his name on the Register now, seeing that he has no other qualification.

Dr. HERON WATSON: The course recommended by Mr. Macnamara seems to me a somewhat dangerous one for us to pursue. From the remarks that have fallen from Dr. Aquilla Smith it might be presumed that the mode of action to be adopted in connection with a dental practitioner was precisely the same as that to be followed in connection with a practitioner of medicine or surgery; but if you will look at the Dental Act you will find that our powers in dealing with a dentist are not equal to our powers in dealing with a medical practitioner. Although the course suggested is no doubt a simple way of escaping from the difficulty—I mean the course suggested by Mr. Farrer—it is not one which has commended itself hitherto to the Council. Section

13 of the Dentists Act says,—“Where a person registered in the Dentists’ Register has, either before or after the passing of this Act, and either before or after he is so registered, been convicted, either in Her Majesty’s dominions or elsewhere, of an offence which, if committed in England, would be a felony or misdemeanour, or been guilty of any infamous or disgraceful conduct in a professional respect, that person shall be liable to have his name erased from the Register. The General Council may, and upon the application of any of the medical authorities shall, cause inquiry to be made into the case of a person alleged to be liable to have his name erased under this section, and, on proof of such conviction or of such infamous or disgraceful conduct, shall cause the name of such person to be erased from the register; provided that the name of a person shall not be erased under this section on account of his adopting or refraining from adopting the practice of any particular theory of dentistry or dental surgery, nor on account of a conviction for a political offence out of Her Majesty’s dominions, nor on account of an offence which, though within the provisions of this section, does not, either from the trivial nature of the offence, or from the circumstances under which it was committed, disqualify a person for practising dentistry.” Then by Section 14 it is enacted,—“Where the General Council direct the erasure from the Dentists’ Register of the name of any person, or of any other entry, the name of that person, or that entry, shall not again be entered in the Register, except by the direction of the General Council, or by order of a court of competent jurisdiction.”

Sir HENRY PITMAN : Will you read the first part of Clause 15.

Dr. H. WATSON : Precisely. That clause enacts that they shall proceed in a definite way to ascertain the facts of the case. We should be extremely rash if we were to proceed to follow out the recommendation in the motion. I wish to point out that there was a great distinction in the whole mode of framing this Act and the mode of framing the Medical Act, and that we should be extremely imprudent to proceed at once to deal with it in this way. As Sir Henry Pitman has properly pointed out in Clause 15, there is a distinct method indicated. The only way is to refer it to the Dental Committee, and allow them to proceed with it exactly on the same principle as the Branch Council would proceed to deal with another case.

Sir HENRY PITMAN : The motion is to erase the qualification. The Act of Parliament does not use the word “qualification” at all. It speaks of erasing the name; it does not follow that the man’s qualification is to be removed. The Dentists Act does not mention qualifications.

Dr. QUAIN : Mr. Macnamara moved that the qualification be removed. The man has but one qualification. That being removed we can move that the name be removed, but we cannot do it without referring the matter to the Dental Committee. We cannot leave on the Register a qualification that does not exist. That is my sole argument, that in no case when a College or Corporation has removed a qualification, can we have it on our Register seeing that it does not exist.

Dr. HUMPHRY : That makes the difficulty of erasing a qualification. There is no provision under the Act for erasing a qualification. You can only erase the name.

Dr. QUAIN : He has not got the qualification.

Dr. HUMPHRY : His name is on the Register.

Dr. QUAIN : The Registrar is informed that the qualification no longer exists, and he is bound to keep the Register correct.

Dr. HUMPHRY : It is a question of erasing the name and that can only be done under Clause 13. You cannot erase the qualification so far as I can see. There is the difference between the Medical Act and the Dentists Act. The Medical Act provides for the removal of a qualification, but the Dentists Act gives no such provision.

Dr. QUAIN : There is the legal order for the Registrar to keep the Register correct. He is officially informed by the College of Surgeons of Dublin that this gentleman is no longer possessed of their license and consequently he strikes it off.

Sir HENRY PITMAN : Then we have no reason to deal with it.

Dr. QUAIN : I agree, except that somebody calls attention to the fact that there is a man's name on the Register without any qualification.

Dr. HUMPHRY : This I believe is the first case that has arisen under the Dentists Act (we can scarcely act upon it without legal advice) of removing a qualification from the Register.

The PRESIDENT : I think the second section of Clause 11 of the Dentists Act states that the Register "shall state the full names and addresses of the registered persons, the description and date of the qualifications in respect of which they are registered." The list is to be correct, and if a qualification does not exist we cannot of course keep it there.

Dr. HUMPHRY : Then the name would remain ?

The PRESIDENT : Yes, as far as that goes.

Mr. MACNAMARA : Will you look at the first two lines of Section 13. "The General Council shall cause to be erased from the Dentists Register any entry which has been incorrectly or fraudulently made."

Dr. HUMPHRY : This has not been incorrectly made.

Mr. MACNAMARA : It will be incorrect if it is repeated.

Dr. HUMPHRY : That is a different thing. It will be well to take legal advice as to our mode of action.

Sir HENRY PITMAN : If the Registrar can deal with it without the authority of the Council what business has it to come before us ?

Mr. SIMON : The question is one of considerable perplexity. Dr. Duncan is not present, and I would remind the Council of an important distinction which he drew yesterday when a somewhat similar question was before the Council, and the importance of which is indicated by a remark made by Dr. Humphry—that the entry made in the Register is not necessarily vitiated by the fact that the qualification is subsequently withdrawn. I may state, not with a view to practical application immediately, but with reference to the general principle, that the Register can be made correct by writing opposite the original entry "subsequently withdrawn." That would be perfectly correct. It does not follow that because a qualification is withdrawn we should actually erase it from our record, seeing that it is the ground on which the name is originally entered. In that sense it remains everlastingly correct whatever course may be taken by the particular medical authorities concerned. It is clear that in the Dentists Act there was no intention of giving the kind of power that is given to the medical authorities under the Medical Act. As has been remarked, the qualifications are not particularly referred to. There is no distinct provision in the Dentists Act for striking off a qualification. Our real

difficulty is this : is a name to remain on the Register without a record opposite it of the ground on which it stands on the Register? I confess I think that would be inconvenient. But does it follow on the other hand, that because a man has entered into a particular contract with an authority that he will not do certain acts, and has committed a breach of that contract, and the authority withdraws the original license, does it follow that we should remove him from the profession of dentistry and strike him off the Register? That is the case contemplated here, apparently, by the framers of the Act. An authority comes before us and states that a qualification has been removed. Then it is for us to consider whether we shall remove the name. It is expressly provided in the 13th section that we may refuse to remove a name where the person has been guilty of an alleged offence; but where, in our opinion, the offence is not sufficiently grave to require the cancelling of the name from the Register. That is an express provision of the Act. As regards the offence of advertising, I do not want to argue the merits of this particular case. We should, I suppose, have to see the advertisement and see the contract entered into. We might or we might not decide that the person had committed a disgraceful act for which his name would be struck off; but the mere fact of his having lost his original qualification is not, I think, a ground for removing the person from the profession without inquiry. On the whole, therefore, the course I would suggest in the matter is that the case be referred to the Dental Committee—that it be considered as though it were a proposal to remove the name. I propose that it be referred to the Dental Committee and that the Committee take such legal advice as they may find necessary on the legal bearings of the case.

Dr. QUAIN : I saw the other day the extreme difficulty we were getting into, and I tried to raise my voice against it. Here we are going to try the action of the College of Surgeons in Ireland. (No, no.) Yes we are. If this is referred, as Mr. Simon suggests to the Dental Committee, it will be the duty of that Committee to enquire into it, and they must have this gentleman before them, and they must have evidence of what he has been guilty of. Therefore we are enquiring into a case which has been decided by the College of Surgeons of Dublin. Then supposing that we think there is no harm in advertising, that would amount to a vote of censure on the College, or on its bye-laws and regulations. Are we to enquire into this matter and still keep the man on the Register? I think we should be content to leave the responsibility with the Licensing Bodies themselves, and to say, "You have taken the man off and we accept your ruling that he has acted contrary to the bye-laws." I saw what was coming. If we go on in this way half the time of the Council will be taken up in discussing the action of the Licensing Bodies—if we go into every case that they have decided. We have gone on all right for twenty-five years, and now all at once this is sprung upon us. I knew it would come, but it has come earlier than I expected.

Mr. MACNAMARA : The law is perfectly clear on the subject. If you look at Clause 15 of the Dentists Act you will find that it states "The General Council shall for the purpose of exercising in any case the powers of erasing from and of restoring to the Dentists' Register the name of a person or an entry"—(and this qualification is an entry)—"ascertain the facts of such case by a committee of their own

body, not exceeding five in number, of whom the quorum shall be not less than three, and a report of the Committee shall be conclusive as to the facts for the purpose of the exercise of the said powers by the General Council." Therefore all that we can do is to refer the matter to the Dental Committee. Thanks to the discussion that has been going on, there is very little probability of our work being concluded to-day, consequently the Dental Committee can sit to-morrow and go into the subject.

Dr. QUAIN : How can you get the man before you? You must have the evidence.

Dr. BANKS : When the case of a man whose qualification had been removed by the King and Queen's College of Physicians of Ireland was before us the Council was not in possession of the facts. On former occasions when a qualification was removed by the College of Surgeons or the College of Physicians, the Council has accepted the decision of the Corporation without inquiring into what the cause was. In seconding the motion for the removal of this man's name from the Register, I stated that I did not know the cause, and that if I had known it I would have followed the examples of Mr. Marshall and would have told the Council. Here we have men removed precisely as we asked that this man should be removed, and I ask what change has come over the Council, or what new facts have arisen that should influence the Council to act differently? The College of Physicians, I am satisfied, would not remove a man's name without inquiry. You stated that you were not content to act blindly in the Irish case because you knew nothing of the facts. You did not then know that what we proposed had been repeatedly done by this Council—to remove the qualification of a man who had acted in some way that the Corporation thought was infamous in a professional point of view.

Dr. STRUTHERS : I should like to point out to Dr. Smith the difference in these cases. Mr. Macnamara has told us the ground for the removal—advertising—which Dr. Smith refused to give. With reference to what Dr. Banks has said, it seems to me that there is no reason why the Council should be bound by its former acts—it may be growing wiser. The ground of removal here is advertising in connection with a Ladies' Dental Institution, South Kensington, which, on the face of it, seems to me a very innocent thing. We require to look into the advertisement. I rise, however, mainly to make this remark, Is it dentists alone who advertise? Is it not the case that we ourselves advertise a good deal too much? Who is to keep the keepers? Is it not a common thing to turn over the pages of the medical journals, and even of non-professional papers, and to see books advertised by physicians and surgeons with equivocal titles? I think this is not a bad time to take notice of that. The Dentists Act speaks of "disgraceful conduct," now what amount of advertising on the part of a dentist is "disgraceful"? That is a very nice point. I think we should take notice of the fact, which is often commented upon outside, that physicians and surgeons—gentlemen who are Fellows of the College of Physicians and the College of Surgeons of London—advertise books with equivocal titles.

Mr. MARSHALL : I think it would save a great deal of trouble to refer the matter to the Dental Committee.

Dr. QUAIN : The question is, what right has this Council to inter-

fere with the bye-laws of the various Bodies? Have we a right to go to the College of Physicians, Dublin, and say, "You have no right to have such bye-laws"? Our excellent friend, Sir Henry Pitman, I am sure would be much surprised if there was a motion in this Council stating that the Council did not see why a Licentiate of the College of Physicians should not be allowed to sell physic. Is it any great harm to sell physic? They are allowed to do it to their own patients, but not to others. If a man has sold physic and disobeyed the bye-laws of the College, I think the College would instantly strike his name off the Register and deprive him of his license. Then the man comes here. I have heard it said by an eminent member of the Council that he could not see why a Licentiate of the College of Physicians should be struck off for selling physic. Now, if we were to go into matters of that kind we should be interfering with the government of these Bodies, and the sooner we disabuse our minds of that the better. Such a position would lead us into interminable difficulties.

Mr. MACNAMARA: Before we go into the matter, I think it would save trouble if you, Sir, would rule on Clause 15 of the Dentists Act, which states that "The General Council shall, for the purpose of exercising in any case the powers of erasing from and of restoring to the Dentists' Register the name of a person or an entry," refer the matter to the Dental Committee. The word is "shall," so that they are directed to do it. As I have already stated, I will undertake to have the evidence here in the morning. The Dental Committee can be summoned for 12 o'clock to-morrow, and then you can have the facts before you and decide whether you will erase the entry or not.

Dr. QUAIN: Surely not, in the absence of the man accused?

Mr. MACNAMARA: You do not want the man, you only want the grounds.

Dr. QUAIN: You must have the man's defence.

Mr. MACNAMARA: I wish that someone would move, as an amendment to my motion, that the matter be referred to the Dental Committee.

Mr. SIMON: I will move that it be referred to the Dental Committee.

Dr. H. WATSON: I second the amendment.

Dr. QUAIN: May I ask the solicitor if the Dental Committee meets to inquire into this matter what is the evidence they will require?

Mr. FARRER: I suppose that the statement of the College would be sufficient for the Dental Committee. But it seems to me that you are no further forward then, because the Dental Committee must refer the matter to the General Council, and then the Council must strike off the name, and if you strike off the name you must summon the offender. But I stand by my opinion originally expressed. The College of Surgeons in Ireland has withdrawn this man's qualification. Under Clause 6 of the Dentists Act, he is on your Register solely by reason of the license, that license having gone, the withdrawal of his name follows as a matter of course—he has no reason for being on the Register. That is my view, and I do not really see, gentlemen, how you can provide the Colleges with directions as to the bye-laws they shall make.

Sir HENRY PITMAN: We have wasted a great deal of time if that is the mode in which we are to proceed. If we are to remove a name as a matter of course in order to keep the Register correct this case need

not have been brought to the Council at all. The simple withdrawal of the name by the Corporate Body would have been announced to the Registrar, and he, if the ruling of Mr. Farrer is right, would, in virtue of that information, take the name out of the Register, and we should not have heard anything at all about it. But why has it been brought before us? It has been brought before us and a discussion has arisen. We have quoted the Dentists Act, and there seems to be in it a provision by which the name shall be erased by a certain mode of proceeding, and it has been urged that we are to do it in that way. But if it can be done in the other way, as Mr. Farrer has suggested it might have been done in order to keep the Register correct, we need not have had the subject brought before us at all, and we should have saved our time.

Mr. FARRER: The Registrar always asks the Council for its direction before he does anything.

Sir HENRY PITMAN: Surely the business of the Registrar is to keep the Register correct.

Mr. MACNAMARA: I am sorry to have to intrude again, but I wish to draw the attention of the members of the Council to page 8 of the Programme of Business. Sir Henry Pitman was good enough not to state *totidem verbis*, but to insinuate that it was through the action of our College that all this has arisen. (No, no.) We have informed you in the boldest language of what had taken place at the College. The Executive Committee then took it upon themselves to decide "That the Registrar be directed to make application to the Royal College of Surgeons in Ireland for information as to the cause of the withdrawal of the diploma in question." Now if time has been wasted it has been wasted in virtue of the action of the Executive Committee, four members of which are members of the Branch Council for England.

Mr. SIMON: And a distinguished member of which comes from Ireland.

The PRESIDENT: The motion is, "That the qualification of Mr. H. F. Partridge, Licentiate, Dental Surgery, Royal College of Surgeons, Ireland, 1878, be removed from the Dentists' Register, the same having been recalled by the College." While the amendment is being written I will venture again to call attention to the Dentists Act, sec. 11, clause 2 of the Dentists Act with reference to what fell from our most accurate Chairman of Business. "The Dentists' Register shall contain the said lists made out alphabetically according to the surnames, and shall state the full names and addresses of the registered persons, the description and date of the qualifications." Now if it be true that that the Registrar is to remove a name without any notice to the Council of any such change being sent to him it will surprise the Council very much. He does, as a matter of fact, make changes, I believe I may say thousands of changes in the Register annually, but not involving these serious questions. I do not suppose it is imagined that he can at once perform an act which would take the name off the Register without any communication either to the Executive Committee or to the Council. Mr Farrer cannot mean that.

Mr. FARRER: No.

Sir HENRY PITMAN: It should be done in accordance with the Act of Parliament.

The PRESIDENT: In such a case as this it is impossible that it should be done by him without a word to the Council or the Executive

Committee. I mention that because I observe that the doctrine has been held that the removal of the qualification is also the removal of the name ; and if he can remove this without further notice to you, he has the power, without communication with any human being, of getting names off the Register. That seems to me impossible.

Dr. H. WATSON : I should like to ask a question. Sir Henry Pitman a little while ago stated that this business in which we have been engaged is practically a great waste of time. Possibly I may agree with him in that. This business, however, has been brought before us not by any individual, but by the Executive Committee of which Sir Henry Pitman is a distinguished member. I should like to know why the Executive Committee acted in this way. Possibly Sir Henry Pitman may be able to tell us.

Mr. SIMON : I move as an amendment, "That the question of erasing from the Dentists' Register the entry of the Qualification conferred in 1878 by the Royal College of Surgeons in Ireland on Mr. H. F. Partridge be referred to the Dental Committee for inquiry and report."

Dr. QUAIN : Have we taken off any other dentist ?

The REGISTRAR : This is the first case of the kind.

Mr. SIMON : I should like to make one observation on the amendment I propose, as against the observations made by one or two speakers in a thorough misapprehension. I had not the smallest intention of questioning any byelaw or any internal government of any medical authority : nothing is further from my intention. On the contrary, I would go far to uphold all such powers. But to my mind there are two separate questions. It has been stated that to strike off a qualification involves (in the opinion of our solicitor particularly) the striking off of his name. My impression is that the two questions stand separately—that we may correct our Register without actually erasing the qualification. The two things do not necessarily go together. When a man has once been put on the Register, he does not stand there solely by virtue of his qualification. At all events, that would be a question for a Court of Justice. I want to point out to the Council that the case of the Dental Register is thus far a different case from that of the Medical Register—that under the Medical Register there is no appeal, but that under the Dental Register there is an appeal, so that if we make a mistake there is an appeal to a Court of competent jurisdiction, and our decision may be legally reversed. We ought to guard ourselves against a misadventure of that kind. I wish to keep separate the question of acquiescing in the decision of the College of Surgeons in Ireland, because I accept their decision and respect it. It is a Body that I have the greatest possible respect for, but the question of removing a man's name from the Register and taking away his means of livelihood, is a question to be judged separately on its own merits. We have to judge it on grounds stated in the 13th Section of the Dentists Act, and we are not, in my opinion, justified in striking a name from the Register unless the offence be such as to "disqualify a person from practising dentistry." These are the terms of the Act, and we must be cautious. Mr. Macnamara's zealous friends seem to insist upon it that an affront is being offered to the College of Surgeons in Ireland ; nothing can be further from the intention of the motion. It is simply to give effect to the Act, which requires that the proposals which you here have for removing the name or entries shall be referred to the Dental Committee.

Dr. H. WATSON seconded the amendment.

Dr. QUAIN: As a member of the Dental Committee, to whom Mr. Simon's amendment refers the question, I beg Mr. Simon to tell us what steps we are to take. I am perfectly ignorant of what I should do as a member of that Committee. I should deal conscientiously before voting on the question—I should wish to hear the defence that this man has to make against the allegation that has been made. I am quite willing to undertake the duty if I know what we are to do. Are we to take evidence for and against? If you are willing to go into that every time these things are brought before you, we shall be exercising a very anxious and troublesome function.

Mr. MACNAMARA: You must do it.

Dr. QUAIN: When will the Council expect the report of the Committee returned?

Dr. H. WATSON: Next session.

The amendment was then put and carried, and it was also carried as a substantive motion.

The following communication was received from the British Dental Association:—

40, Leicester Square,
London,
Nov. 10th, 1885.

SIR,—I am directed by the Representative Board of the British Dental Association to ask the consent of the GENERAL MEDICAL COUNCIL, for Mr. WALTER READ GALLOWAY, Managing Clerk of Messrs. BORMAN and CRAWLEY-BREVEY, Solicitors to the Association, to prosecute, on behalf of the Association, JOHN WILLIAM BLAKE, of Sheffield, for an infringement of the *Dentists Act*.

The leading facts of the case are as follows:—

Mr. BLAKE, whose name is not, and has not been in the *Dentists' Register*, practises as any ordinary dentist in this country, placing his name on his house, with a statement that he is a dental graduate of Philadelphia; he also advertises, by means of newspapers and circulars, to the same effect.

On his attention being called by letter to the requirements of the *Dentists Act*, he claims in reply thereto exemption under Section (1) of clause 4 of the *Dentists Act*, which states as follows:—

“(1) He shall not be guilty of an offence under this Act——”

“(a) If he shows that he is not ordinarily resident in the United Kingdom, and that he holds a qualification which entitles him to practise dentistry or dental surgery in a British possession or foreign country, and that he did not represent himself to be registered under this Act;——”

The British Dental Association have taken Counsel's opinion in order that the contention may receive an authoritative decision, and they are advised that the case is a direct and very prejudicial infringement of the Act. It is hoped, therefore, that the GENERAL MEDICAL COUNCIL will see fit to accede to this request, in order that the contention may receive an authoritative settlement.

Further particulars of the case will, if needed, be furnished to you, to be placed before the MEDICAL COUNCIL.

I am,

Your obedient servant,

FREDERICK CANTON,
Honorary Secretary.

W. J. C. MILLER, Esq., B.A.,
REGISTRAR of the GENERAL COUNCIL.

It was moved by Dr. STORRAR, and seconded by Dr. BANKS, “That this application be acceded to,” and after some discussion as to the

exact form which the resolution should take, it was ultimately resolved "That permission be given to Mr. Walter Read Galloway to prosecute John William Blake, of Sheffield, for an alleged infringement of the Dentists Act (1878)."

MINOR NOTICES AND CRITICAL ABSTRACTS.

The Missing Incisors in Man. Which are they?

By H. H. EDWARDS, D.D.S., Madrid.

GENTLEMEN,—In presenting the accompanying drawings to your excellent Society, I will, with your indulgent permission, supplement them with a short description; also, if not trespassing too much on your valuable time—to say nothing of your patience—will endeavour, in as brief a manner as possible, to add a new argument to this highly interesting subject. In the first place, allow me to publicly thank Mr. Wilson for having brought the

Case 1A. Male, aged 35.

a. a. Marked grooves indicating site of permanent canines extracted when young.

subject to my notice, it being the publication of his able paper that set me thinking.

No. 1 represents a mouth in which the six incisors evidently are

intact. The canines were extracted when the patient was a youth, in order to correct an otherwise great inconvenience and deformity. The supernumerary teeth are those on either side of the median line. The one on the right side being a geminous tooth, the supernumerary half of which would naturally follow the central type.

Case 1B.

No. 2. This case presents a supernumerary tooth erupted to the left of the median line, and extraordinarily well placed in the line of the arch. This tooth is, in all its appearances, a supernumerary tooth of the central type.

No. 3* is the model of a supernumerary tooth erupted to the right of the median line. This case is a common expression exhibited by supernumerary teeth, and requires no more mention than to say I believe it to follow the central type.

No. 4 presents a case in which, with our present knowledge, we presume that the left side of the mouth is normal, but on the right side of the mouth there exists a space between the central incisor and the—as Professor Turner puts it—pre-canine. This pre-

* It has been thought unnecessary to reproduce diagrams 3 and 9, as the conditions are easily understood by referring to the others.—ED.

canine evidently is a supernumerary tooth, small, but partaking of both forms of central and canine, a sort of nondescript, which may

Case 2. Male, aged 16.

Case 4. Male, aged 40.

or may not be a diminutive type of the, so put forward, missing outer-third incisor. But why—when, as in this case, there is a certain space left open—the lateral incisor is suppressed and this supernumerary tooth created, is a matter for discussion and investigation beyond my power.

No. 5 is a case somewhat similar to the preceding one, with this exception, that the open space is between the lateral incisor and the canine on the right side of the mouth. In this case, the

Case 5. Female, aged 35.

lateral incisor has erupted, and nature seemed willing to leave space enough for the eruption of the outer-third incisor, but it was not forthcoming.

No. 6. This is another case exhibiting spaces left for the eruption of teeth and the non-fulfilment of the same. This, if the centrals had been close together, would be a very common expression of the suppression of the lateral incisors. It is a question as to whether the spaces left between central incisors may or may not be intended by nature for the eruption of teeth.

In No. 7 is exhibited an arrangement of the teeth, having the left lateral suppressed, and the canine well up to and touching the

central incisor. I should also say that the right lateral incisor is suppressed; the pre-canine, though not clearly shown in the drawing, has in the model the decided appearance of being—as in case 4—supernumerary.

No. 8. Is a carved imitation in ivory of a specimen that came into my hands not long ago, having been extracted in order to clear the mouth for an artificial denture, and given me by the patient on account of its peculiarity. It is evidently a geminous lateral incisor. Here seems strong evidence in favour of the outer-third incisor. I have never seen a similar tooth, and I believe it to be a rare and interesting specimen. In the original, a bristle can be passed into each pulp canal.

Case 6. Male, aged 24.

No. 9. It is but a few days since this case came to my notice, and I include it, as shewing that the expression of No. 7 may appear on either side of the median line.

It is perhaps needless to say I have cross-examined each of these patients—who are all educated intelligent people—one of them being the present Home Secretary, to find out if any extractions had been done when young, for, I am sorry to say, there are

dentists in this country who, through ignorance, are liable to extract a permanent tooth for a temporary one, but they all affirm that no such extractions have taken place.

I must apologise for the few cases presented, but I have presented them by selection, so as to cover the majority of variations that have come under my notice, which are many and various, indeed, nature seems to "ring the changes" upon the arrangement of these supernumerary teeth in a prolific manner.

Supernumerary teeth are undoubtedly presented to us by the great law of inheritance, the principal forms of which law may be divided into continuous, interrupted, collateral, and atavic.

Case 7. Male, aged 33.

The appearance of these supernumerary teeth is, I believe, due to the law of atavism ; but upon whose authority we have it that pre-historic man possessed six incisors, I know not, unless it be that of the "Evolutionist," I believe there are many who do not believe in the theory of evolution, but I will leave that question for more experienced men than myself to argue. One observation I will make, though. I suppose that atavic characteristics appearing with comparative frequency, is an effort on the part of nature

to bring to our notice forgotten facts, doubtless for our edification, though whether for our use is questionable. As in chemistry our professors tell us that no matter what changes take place, no particle of matter is lost, so in Nature, to those who can read aright, no information is wanting, though seemingly lost, to instruct us in what existed pre-historically. She is full of signs and warnings, but there is a want of ability on the part of man to read her with sufficient intelligence.

There is an interesting article in the *Cosmos* for September, entitled "Heredity and Development of the Teeth," by Dr. Alton Howard Thompson, which will bear careful reading. Although the "missing incisors in man" may or may not have been in his thoughts, I may be permitted to quote somewhat relating to that subject. He says, "The suppressive effects of disuse as affecting development of the teeth through heredity and variation, are also to be noticed. In no class of organs are the inherited effects of variation due to the influence of changed conditions so marked as in the teeth of man. Being thus susceptible to the effects of active employment or of neglect, they have, by the protracted operation of disuse weighing upon them and retarding their production for generations, become, as one of its effects, so defective and incomplete as to approach the condition of rudimentary organs. The active employment of an organ makes demand upon the nutritive powers for its growth and strength, which is responded to by increased nutrition and added strength by those powers; and use gives an impetus to transmission, which causes that organ to be well and strongly developed in the next generation. But disuse furnishes no stimulus to either nutrition or transmission, and the organ so affected is produced as a tradition due to the stimulus of past generations, when it was in active employment, but owing to its disuse in recent generations, it is weak and ill-formed; it has not the necessary stimulus either for development or strength. Not only that, but an organ that has fallen into disuse and neglect, becomes deleterious and injurious, and is, by a natural process of economy of growth, deprived of nutrition, that it may be suppressed and aborted. The remains of many such organs linger in the organisation of man as rudiments of former organs which served a useful purpose under different modes of life; but the conditions of life being changed by new environments, these organs became useless, then injurious, and were gradually suppressed by the law of

economy of growth. Such organs the teeth of man are rapidly becoming. Indeed the wisdom teeth have already arrived at that stage in their career of suppression, when they are little more than rudiments. They are never well organised, are often rudimentary in form, and often totally absent, either through failure to erupt or of development. The wisdom tooth in the race is departing, and we are the contemporary witnesses of the act of its abolition as a useful organ. Will the second molar follow it in time, and then the other teeth in more or less regular succession? We do not know, we only speak of what we observe. But we do know that all the teeth are defective in form, and deficient in structure, in most of the individuals of the luxurious races of man."

He does not appear to have noticed particularly the suppression of the lateral incisors, but only mentions that of the third molars. I will refer to the third molars later on.

Dr. Thompson also quotes M. Topinard (Anthropology), who says, "The most remote ancestors have their share in forming the individuals, as well as the immediate parents. In atavism, the reappearance of character is a matter of chance, or rather there are in the germ latent powers, which are awakened into activity by favourable influences."

Also he quotes Dr. Norman W. Kingsley, who says, "It is a most wonderful subject for contemplation, that at some remote period in the history of our progenitors, when nature departed from the normal type, to produce, say, a deformed lateral incisor, a twisted cuspid, or to suppress a lateral, or a third molar, that following down the line of descent we find precisely the same peculiarity, appearing and reappearing in the same line, and again not in the one, but in different branches of the family.

Of course if we ask for a reason why nature interferes with existing laws to present us with a past specimen of her handiwork, we shall get no satisfactory response. In answer to an article of mine recently published in the *Dental Practitioner*, U.S.A., Dr. Dwight Ingersoll says, among other good things,—“The reason why nature permitted physical laws to interfere with the laws of the organic kingdom has been asked for a thousand times, but no satisfactory answer has ever been given, because there is no reason for anything that has been brought into existence, the action of law. Nature seems to be blind and deaf to reason, and is arbitrary in all her ways. A reason was never given for anything until man came endowed

with reason, and since his advent nature has seemed to be perfectly contented in allowing him to manifest the little he has, in his own way." I may add that there is great truth in the foregoing, notwithstanding its terseness.

Well, then, if nature stands aside and leaves us to reason these things out, being content only to present us with the enigma, our duty evidently is to stand in the breach "à l'outrance."

The question before us concerns the incisor teeth, but if I may be allowed to make a short digression, I would like to say a word about the molars. How many molar teeth did pre-historic man possess? Our nearest kinsfolk, I presume, by the law of evolution—if accepted—are the Simiadæ, of which there are three families, namely;—1, Arctopithecini; 2, Platyrrhini; and 3, Catarrhini. Now, these worthy kinsfolk—begging the pardon of any susceptible gentleman present—though their incisors are the same in number as our own, somewhat differ with regard to the number of their premolars and molars. No. 1 possesses 3 premolars and 2 molars; No. 2 possesses 3 premolars and 3 molars; No. 3 possesses 2 premolars and 3 molars, on either side, above and below. I mention this for the following reason:—Some ten years ago I extracted a tooth—supernumerary of course—from the mouth of a woman in the west of England, that had the appearance partly of bicuspid, and partly that of a molar, but very small. It had erupted buccally between the second and third molars on the right side of the upper jaw. As it is an undisputed fact that the third molar is being suppressed, and in everyday practice I see numbers that are little more than rudimentary, it may be that the third premolar has been suppressed. One case is not sufficient to prove anything, but if there are other gentlemen who have met with similar cases, I would like very much to know their opinion. Certainly it would strengthen materially the theory—if so be there is a theory—of the suppression of outer thirds, namely:—The third molar, the third premolar, and the third incisor. Whoever has noticed the jamming and difficult eruption of the lower third molars that so frequently takes place, must also have remarked a shortening of the jaw itself, at its posterior portion. The law of economy of growth will not admit of superfluous organs, or parts of organs, therefore if the third molars are to be suppressed, the jaws will shorten in consequence; or if the jaws take the initiative, then the molars must be crowded out.

Now let us return to the incisors. If so be that pre-historic

man possessed six incisors, the question is—which pair or pairs have been suppressed?

At the outset, I think it is of vital interest that the period of eruption of the supernumerary teeth should be carefully recorded. I have never been fortunate enough to see a supernumerary tooth during the process of eruption; it would doubtless be of use in ascertaining to which type it belonged, and serve as useful data, so that we might reasonably fix the succession in which it originally erupted. If, by the law of atavism, the suppressed tooth appears, its appearance by the same great law should take place in its original succession. We know that the central incisors erupt at the age of 6—8 years; the lateral incisors, 7—9 years; and the first bicuspid from 9—10 years. Therefore, if the supernumerary tooth be of the lateral type, it should erupt between the ages of 8—10 years; if, on the contrary, it be of the central type, according to the position in which we place it, namely, as a suppressed *central*, it should erupt between 5 and 6 years of age; while, if a lateral following the central type, between the ages of 6 and 8 years.

I have no doubt that some gentleman will take exception to my fixing a date for the eruption of supernumerary teeth, and may with fairness say, that if in form these teeth are erratic, their eruption may also be erratic, and, therefore, cannot form a reliable basis.

And now for a “new departure.” Since having my attention drawn to this subject by Mr. Wilson’s paper, I have differed somewhat in my mind from his views, and am more inclined to look upon the supernumerary tooth as being a rudimentary *central*.

The incisors are the teeth of prehension, and the centrals naturally are the most prehensile, therefore if suppression has taken place through disuse, I infer that the original centrals would be the first to disappear. That the present lateral incisors are *now* being suppressed is not denied. But why? Because the present centrals still find sufficient employment to warrant their continuance, whilst the laterals are becoming more and more superfluous. In about 25 % of my patients I find the central incisors separated, while the lateral incisors of 50 % possess cutting edges inclining more towards the canine arc than following the central cutting line. As a curious coincidence, whether arising from observation or professional direction, the manufacturers of artificial teeth are making their lateral incisors every day more and more like unto the happy medium between centrals and canines, namely, with

rounded corners ; they profess to have made them from impressions taken from the natural teeth, and in practice, whether for pivoting or plate making, that is the class of tooth I mostly use. It may possibly be a peculiarity possessed by the Spaniards, but, as I say, I find a goodly percentage with spaces between the centrals, the centrals small in comparison with the canines and molars, and the laterals possessing the intermediate form between centrals and canines, even to the labial longitudinal ridge. The above observations being forced upon me daily, with an occasional supernumerary tooth or teeth in the medium line or space, as in cases Nos. 1, 2, and, perhaps, 3, make me strongly inclined toward the idea, namely, the suppression of the original *centrals* from generations of disuse.

Of course, this is only surmising, but I would present the idea, with the view of widening the field of vision. We know that a solution sought for is invariably found, provided we wish that particular solution to *be* found ; if a man wants a particular cause in order to explain a particular lesion, he will generally adopt that one which appears right to him, and work hard at his proofs, not deigning to accept any innovations. It is partly with the idea of averting such a catastrophe that I have presented the possibility of the supernumerary tooth or teeth as being suppressed *centrals*.

If the idea—mind, I assert nothing—brings forth good fruit in the shape of a thoroughly useful discussion of the subject, I shall be satisfied ; often a dissenting voice will either clench the accepted idea, or it will set men thinking of other possibilities.

On such meagre evidence as we possess, it is the wildest folly to found a theory ; all we can do is to collect facts that will enable the next generation to form a firm basis. Facts, gentlemen, facts ! Let all collect, accumulate, and register them in such quantities, that when *we* are gone there may be no excuse for the coming physiologist to taunt us with idleness or indifference.

In conclusion, gentlemen, I would earnestly impress upon all professional men, especially those whose practice commands the care of children's teeth, as in dental hospitals, to watch the development of these supernumerary teeth, and to carefully record all such cases that come under their notice.—(*Transactions of the Odonto-Chirurgical Society of Scotland.*)

On the Durability of Fillings made according to the Herbst Method.

By ELOF FORBERG, D.D.S.; Stockholm.

THE method of filling introduced by Dr. Herbst is everywhere gaining ground, and its advantages have been generally acknowledged by those who were willing to be convinced. Still it has its enemies, one of the objections raised being, "Is such a filling lasting? Are the fillings made in this way durable?"

One of the chief advantages gained by this method being the extraordinarily accurate adaptation of the filling to the walls of the cavity, such fillings might, in my opinion, be expected to last longer than others, supposing that they were made with the same care. But by way of proving that such is really the case, I may say that during my last stay in Bremen, I saw amongst Dr. Herbst's patients many who had had their teeth filled by his method several years before. I remember in particular the following cases.

A gentleman had several fillings,—proximal, with and without contour, as well as others,—all, according to his own account, more than three years old, and all of them still quite perfect. A young lady told me that one of her teeth,—the left upper central,—having become quite black through the bad treatment it had been subjected to several years before, Dr. Herbst drilled into the tooth from behind, removed the discoloured dentine until the whole frontal surface of the tooth was transparent, and then filled with gold. I examined this interesting filling, which had been inserted about four years, very closely, and found the gold everywhere glimmering through the very thin walls of the tooth. The adhesion was most perfect; nowhere could a trace be seen of those bluish marks which are so frequently present in such a case. The whole of the filling, which bore witness of having been inserted with extraordinary skill, looked as if it had been quite recently finished.

A youth of seventeen had, in the course of six years, been obliged to have most of his teeth filled, and all of the fillings were still in the very best condition. I saw also a gentleman who had had several fillings inserted eighteen months before, all of them without the least defect.

About a year ago Dr. Herbst filled seven of my own teeth, and these fillings are now giving me entire satisfaction, except two, about which I may state the following facts:—One of them, on the

distal surface of the left lower first bicuspid, happened to get rather roughly treated in an "examination" with a sharp excavator, after which the surface was somewhat uneven to the tongue. This might have been easily repaired, but wishing to ascertain the state of the cavity under the filling, we decided upon removing it altogether. Those present, viz., Professor Heidé, of Paris, the brothers Herbst, and Dr. Oster, of Kristianstad, Sweden, found the cavity so perfectly clean that the refilling was at once undertaken without any further excavation being made.

The other tooth—the right upper second bicuspid—had been filled on the distal side nine years before in America by an adherent to the "Arthur's Permanent Separations" system. As the masticating surface had by this means been considerably diminished, this filling always caused me much discomfort, the food being, in the act of mastication, constantly forced up between the teeth and against the gums. Further decay had attacked the edges of the cavity, which were denuded of enamel, and the filling had become loose. Dr. Herbst therefore refilled the tooth for me last year, but as I forgot to ask him to restore the contour, I still suffered from the inconveniences mentioned above. This year we agreed, therefore, to remove this filling, with the view of ascertaining the state of the filling and of the cavity. Professor Bödecker, of New York, drilled into the filling, which proved to be very hard, and though pierced in several directions, the separated parts adhered as if cemented to the walls of the cavity.

Professor Bödecker seemed quite astonished at the hardness of the filling, as well as at the perfect state in which the dentine underneath it was found,—looking as if it had just been excavated—while a filling which had been malletted into the cavity would never have adhered to the walls as this one did.

Judging from these facts, as well as from my own experiments, I am now quite convinced as to the superiority of the "New Method," although I have up to this time stood somewhat aloof from it, and abandoned the mallet very unwillingly.*

The objection may now be raised that the fillings here mentioned are neither numerous enough nor old enough to serve as positive proofs of the durability of the work. To this I would reply that I have only mentioned those cases of which I happened to be a witness in the course of a few days. Professor Bödecker

* Dr. Förberg was a pupil of Dr. Marshall Webb.

will probably also publish some account of his experiences. And secondly, that as the method has only been invented about six years, if the above-mentioned fillings, made some three or four years ago, have during that time remained without the slightest alteration, although the method was then nothing like so perfect as it is at the present time, we certainly need not be anxious about the durability of the fillings which we now execute in a careful manner and with a studied observance of all the improvements which practice and experience have called forth.—(*Skandinavisk Tidsskrift for Tandlæger.*)

ANNOTATIONS.

THE present season, when preparations are being made for a fresh issue of the Dentists' Register, seems the proper time to call attention to what we hold to be a grave mistake on the part of many young practitioners, who from carelessness or from some narrow notion of being unable to see any immediate personal advantage, neglect to register after having received their diploma ; others, again neglect to enter on the Register any additional qualifications which they may have obtained. Such omissions are a grievous error, and a direct hindrance to the perfection of the Dental, as they would be to any other Register, the precision and comprehensiveness of which must ever be its sole title to legal value and utility.

WE hear that a number of Mr. Oakley Coles' old friends and colleagues intend to present him with a testimonial on his retirement from the profession. A committee has been formed consisting of Messrs. H. Royes Bell, Edward Bellamy, Thomas Gaddes, Henry Smith, Dr. Brodie Sewell and Lord Alfred Paget, with Sir Edwin Saunders as Chairman, Mr. Charles Vasey, Treasurer, and Messrs. J. S. Turner and William Rose, Secretaries. Contributions should be sent to the Treasurer, at 5, Cavendish Place, before the end of this month.

WE are pleased to learn that the annual dinner of the Past and Present Students of the Dental Hospital of London has only been postponed. One of our contemporaries is, however, in error, in giving a date for it, since we are informed on good

authority that this has not yet been fixed. The meeting will probably take place early in February, and of course due notice will be given.

"CHRISTMAS APPEALS" have of late become so numerous that we are inclined to think the present about the worst time of the year at which to solicit contributions for any charitable object. Still there can be no harm in asking our readers to "remember the Benevolent Fund." Some few, at all events, will, we hope, be sending up their annual subscriptions next month, and may, perhaps, be induced to add a trifle for this very deserving object. We are sorry to hear that the Cambridge meeting only added one name—that of Mr. J. B. Bridgman, of Norwich (£1 rs.)—to the list of subscribers. Mr. D. Dopson, of Liverpool, at the same time increased his subscription from half a guinea to a guinea, and 8s. 3d. was found in the collecting boxes. During the four months which have elapsed since the annual meeting nothing has been received! We shall have much pleasure in acknowledging a good long list of fresh subscriptions next month and hope we may be called upon to do so.

WE have referred more than once to the great waste of valuable material which takes place at our dental hospitals from the absence of any adequate record of the work which is done in them and of the results obtained. To Mr. Bowman Macleod, the dean of the Edinburgh Dental School, and the Committee of the Edinburgh Dental Hospital, must be awarded the credit of being the first to endeavour to remove this reproach. After careful deliberation, they have decided to adopt a modification of Dr. George Cunningham's system of Dental Notation for use in the hospital, all the important particulars of each case being briefly noted on cards which have been specially designed for this purpose. Of course the system is as yet only on its trial, but with due supervision on the part of the staff, especially at starting, we see no reason why it should not prove satisfactory. We certainly hope that it may, and shall await the result of the experiment with great interest.

IN our January number we gave some particulars respecting a death under nitrous oxide which occurred at Paris in the practice of M. Duchesne, a dentist who is well-known in France

through the medium of his widely disseminated advertisements in the Paris and provincial newspapers. M. Duchesne has just been tried for homicide before the Tribunal de Justice at Paris, and sentenced to pay a fine of 600 francs and 3,000 francs (£120) damages. The trial was not in the form of a criminal prosecution, but was a civil action brought by the family of the deceased claiming damages for the loss sustained by his death, as is usual in the case of fatal railway accidents in this country, and the judge in assessing the damages stated that he had taken into consideration the fact that the family of the deceased had already received a considerable sum, the amount of an insurance on his life.

WE regret that we are compelled for want of space to postpone the publication of our report of the meeting of the Odontological Society on the 7th inst., the more so because it was an unusually good meeting. Sir William McCormac's graphic account of a most distressing accident which had happened to Mr. J. J. H. Sanders, of Barnstaple, and its consequences, was listened to with the greatest interest. Mr. Sanders had occasion to extract some stumps for a young woman, aged 24, a servant, previous to fitting an artificial denture. Chloroform was administered by Mr. Henry Jackson, a surgeon of Barnstaple, and Mr. Sanders extracted the roots of the third and second left upper molars and then attempted to extract the second bicuspid, but met with unusual resistance and the forceps slipped. On reapplying them and using a little more force the palatine blade snapped off close to the joint and disappeared. Symptoms of impending suffocation immediately supervened and it was evident that the fragment had entered the trachea. The patient was inverted, and every means taken to favour the expulsion of the foreign body, but without effect. The dyspnoea, however, passed off after a time and the patient remained for some weeks in comparative comfort. Signs of secondary mischief then began to show themselves on the right side of the chest, and the patient again getting into a very critical condition, she was sent up to London. Tracheotomy was performed by Sir William McCormac at St. Thomas' Hospital, and the foreign body removed after considerable difficulty.

As Mr. Spence Bate remarked, dental practitioners are, as regards the liability to an accident of this kind, altogether in the

hands of the instrument makers. A dentist can do no more than provide himself with forceps made by some maker of known reputation. The forceps in question bore the name of "Evrard" plainly stamped upon them, but several of the members present, who were well acquainted with Evrard's work, expressed a very decided opinion that they were not his make,—a difference being noticeable in the handles, and the lettering of the name being slightly larger than that on genuine Evrard forceps. It is well-known that forgery of this kind is rife in the cutlery trades, and that instruments bearing well-known names are sold as second-hand which are not second-hand at all, and which are dear at the seemingly moderate price paid for them. It would, therefore, be interesting to know if Mr. Sanders is acquainted with the history of these forceps, or could state whence he obtained them.

WE are glad to see that the lay press has taken a good deal of notice of Mr. Fisher's paper on "Compulsory Attention to the Teeth of School Children," which he has republished in pamphlet form. Probably the favourable opinions expressed represent as yet only the views of the writers, or, at most, of the more intelligent portion of the community, with which parish vestries and school committees, at all events in their corporate capacity, do not seem to have much in common. Still, public opinion may be educated, and—with time and occasional reiteration—it is probable that the practical common sense view of the question will prevail in the end.

It may be well to remind some of our readers that the next meeting of the Odontological Society of Great Britain, the Annual Meeting for the election of officers, &c., will take place on the *second* Monday in January (11th prox.) instead of the first, as usual. Dr. Dudley Buxton will read a paper on "the Physiological Action of Nitrous Oxide," a subject which, we have no doubt, will give rise to a good discussion.

TO CORRESPONDENTS:

NOTE.—ANONYMOUS letters directed to the Secretary of the Association cannot receive attention.

P.O. Orders must be accompanied by Letters of Advice.

Communications intended for the Editor should be addressed to him at 40, Leicester Square, W.C.

Subscriptions to the Treasurer, 40, Leicester Square.

DENTAL SURGERY AT THE METROPOLITAN HOSPITALS, &c.

HOSPITALS.	DENTAL SURGEONS.		ASSIST. DENTAL SURGEONS.	DAY AND HOUR OF ATTENDANCE.	ADMINISTRATORS OF ANÆSTHETICS.
St. Bartholomew's...	Mr. Ewhank ; Mr. Paterson	Mr. Mackrell; Mr. Ackery ...	Daily at 9 a.m.	Mr. Mills,
Charing Cross ...	Mr. Fairbank ... ..	...	... ..	Monday, Wednesday & Friday, 9 a.m.
St. George's ...	Mr. Winterbottom ... ..	...	... ..	Tuesday, 9 a.m.... ..
Guy's ...	Mr. Henry Moon ... ..	...	Mr. F. N. Pedley	Tuesday and Thursday, 12.30 noon ...
King's College ...	Mr. S. H. Cartwright ... ..	...	... ..	Tuesday and Friday, 10 a.m.
The London ...	Mr. Ashley Barrett ... ..	...	... ..	Tuesday, 9 a.m.... ..
St. Mary's ...	Mr. Howard Hayward... ..	...	... ..	Wednesday and Saturday, 9.30 a.m. ...
Middlesex ...	Mr. Bennett ... ..	...	Mr. C. Rogers	—
St. Thomas's ...	Mr. Ranger ... ..	...	Mr. Chas. Truman	Tuesday,
University College... ..	Mr. Hutchinson... ..	...	... ..	Wednesday, 9.30 a.m.... ..
Westminster ...	Dr. Walker	Mr. Smale	Wednesday and Saturday, 9.15 a.m. ...	Mr. Bailey. Mr. Bird. Mr. Mills. Mr. Braine. Mr. Bird. Mr. Bailey. Mr. Glassington. Mr. Tyrrell. Mr. Hewitt. Mr. Winslow. Mr. Tyrrell. Mr. Winslow.
London Dental ...	Mr. David Hepburn ... ..	...	Mr. W. Hern... ..	Monday, 9 a.m.... ..
" "	Mr. R. H. Woodhouse... ..	...	Mr. Arthur S. Underwood	Tuesday, 9 a.m.... ..
" "	Mr. Gregson ... ..	...	Mr. Claude Rogers	Wednesday, 9 a.m.
" "	Mr. Storer Bennett ... ..	...	Mr. George Parkinson	Thursday, 9 a.m.
" "	Mr. Henry Moon ... ..	...	Mr. Lawrence Read... ..	Friday, 9 a.m.
" "	Mr. F. Canton ... ..	...	Mr. Truman	Saturday, 9 a.m.
National Dental ...	Mr. Henri Weiss ... ..	...	Mr. Willoughby Weiss	Monday, 9 a.m.... ..
" "	Mr. Alfred Smith ... ..	...	Mr. Giles Bradshaw	Tuesday, 9 a.m.... ..
" "	Mr. G. J. Williams ... ..	...	Mr. Marcus Davis	Wednesday, 9 a.m.
" "	Mr. A. F. Canton ... ..	...	Mr. H. G. Read	Thursday, 9 a.m.
" "	Mr. T. Gaddes ... ..	...	Mr. Scott Thomson	Friday, 9 a.m.
" "	Mr. Harry Rose... ..	...	Mr. W. R. Humby	Saturday, 9 a.m.

MEETINGS FOR THE MONTH.

Dental Hospital of London.—Finance Committee, December 18th, at 5.30 p.m. ; Committee of Management, December 21st, at 5 p.m. ; Medical Committee, December 17th, 5 p.m.

Odontological Society of Great Britain.—Council, Monday, January 11th, at 7 p.m. ; General Meeting, at 8 p.m.
British Dental Association.—Publishing Committee,

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